COTTON

Volume LXXXI
Number Twelve
Twenty Cents a Copy

OCTOBER, 1917

Published Monthly by
W. R. C. Smith Publishing Co.
Dalton, and Atlanta, Ga.

Our Rings
SET THE STANDARD
For Quality

THERE ARE NONE OTHERS
"JUST AS GOOD"

Mirror Spinning Rings
Trade Mark Reg. U. S. Pat. Off.

DRAPER CORPORATION
HOPEDALE MASSACHUSETTS

Southern Office 188 South Forsyth Street Atlanta Georgia

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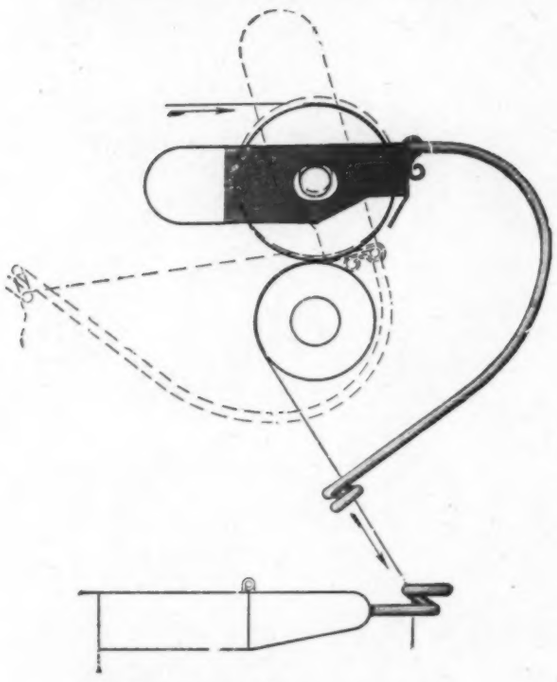
With prices of two-ply yarn soaring



Why not improve the quality of the yarn by using the

Smith Stop Motion

DRAPER CORPORATION

HOPEDALE MASSACHUSETTS

Southern Office
188 South Forsyth Street Atlanta Georgia

Copyright 1916 by Draper Company

The Northrop

Trade-Mark Registered

Loom

is the accepted standard
for weaving both
Cotton and Worsted fabrics
that can be woven
with one shuttle
It reduces the cost of weaving
50 to 75 per cent.

Draper Corporation

Hopedale Massachusetts

Southern Office
188 South Forsyth Street Atlanta Georgia

Copyright 1916 by Draper Corporation

Copyright 1916 by Draper Company

The Best White Ever Offered To A Textile Mill

Now, please don't tell us that calling our white "The best" is old stuff, and that we should think of something else. We know that it's a statement too many manufacturers proclaim just because it sounds big.

But, when you come right down to the bare, truthful facts and have it proven to you right and left that your product **IS** the best, then and THEN ONLY can you truthfully claim that no better white was ever offered to a textile mill.

We say "Dixielite" is the best, because we honestly believe it, and because it has pulled out ahead in every test and comparison. If you don't believe it, ask some of the mill men who have used it after having used nearly every other mill white on the market —ask them if it isn't the best white they've ever used. Then, if you don't believe it, try it yourself and be convinced.

"Dixielite" puts a **PURE WHITE SEMI-GLOSS** surface on your walls and ceilings—a white that STAYS WHITE.

Our 65 year reputation is a guarantee of perfect satisfaction which backs up "Dixielite." It's not an imitation, but a PERFECTED WHITE. You may have to pay a little more for it, but if you accepted an inferior brand of mill white you would only be fooling yourself and it would cost you more in the long run.

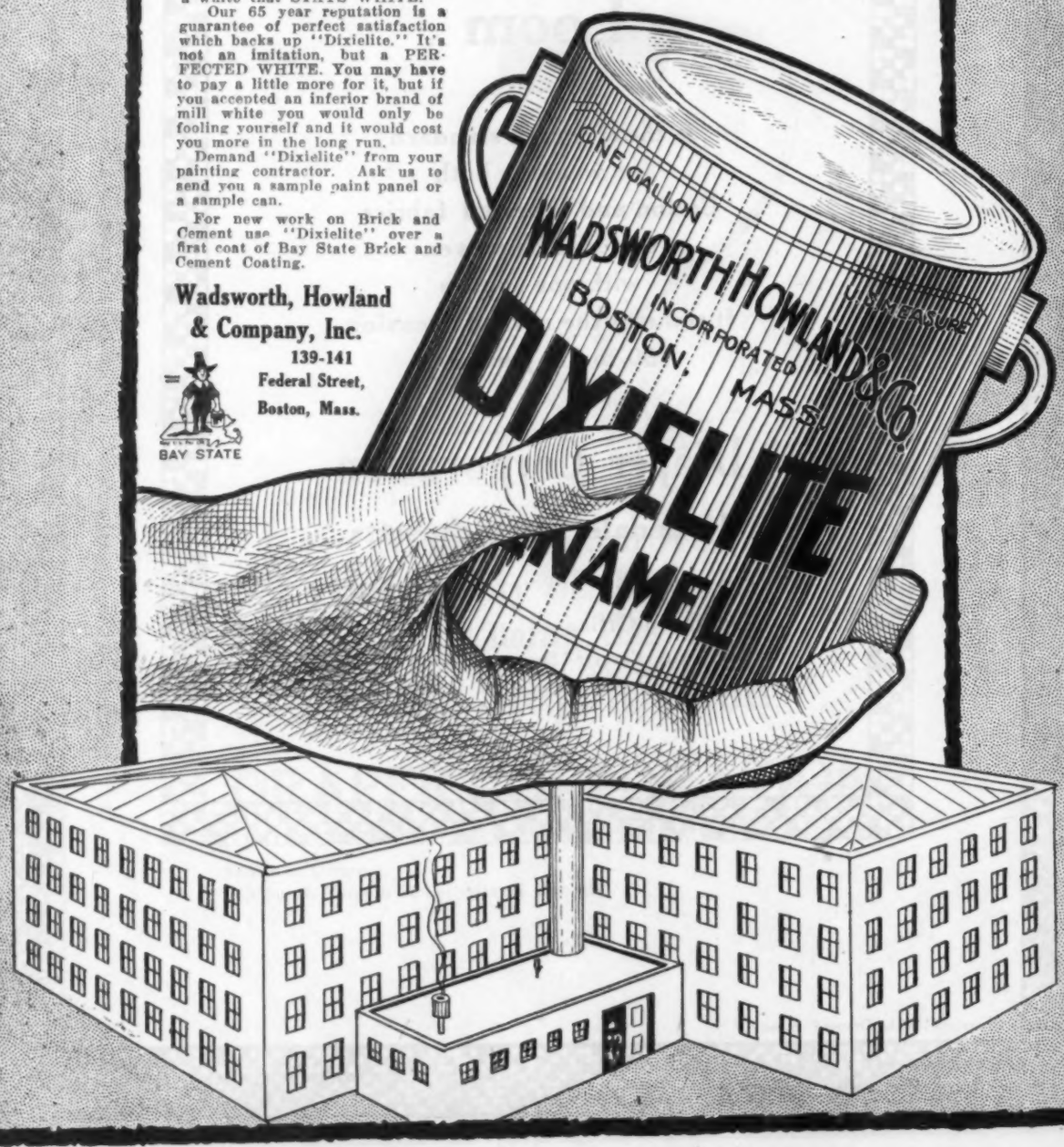
Demand "Dixielite" from your painting contractor. Ask us to send you a sample paint panel or a sample can.

For new work on Brick and Cement use "Dixielite" over a first coat of Bay State Brick and Cement Coating.

Wadsworth, Howland & Company, Inc.

139-141 Federal Street, Boston, Mass.

BAY STATE



SACO-LOWELL SHOPS

TEXTILE MACHINERY

INCLUDING

ROVING FRAMES

OF

IMPROVED DESIGN

AND

CONSTRUCTION

SLUBBER FRAMES

INTERMEDIATES

FINE FRAMES AND

JACK FRAMES

SHOPS

BIDDEFORD, ME. LOWELL, MASS. NEWTON UPPER FALLS, MASS.

EXECUTIVE OFFICES

BOSTON, MASS.

ROGERS W. DAVIS, Southern Agent, CHARLOTTE, N. C.

Two Recent Developments

In Automatic Weaving

Automatic Tire Fabric Loom

Automatic Silk Loom

We make automatic looms for
all manner of textile fabrics.
Plain or fancy, coarse or fine.

"IDEAL"

The Stafford Company

Readville, Mass.

Southern Office - - - Charlotte, N. C.

"IDEAL"

CROMPTON & KNOWLES LOOM WORKS

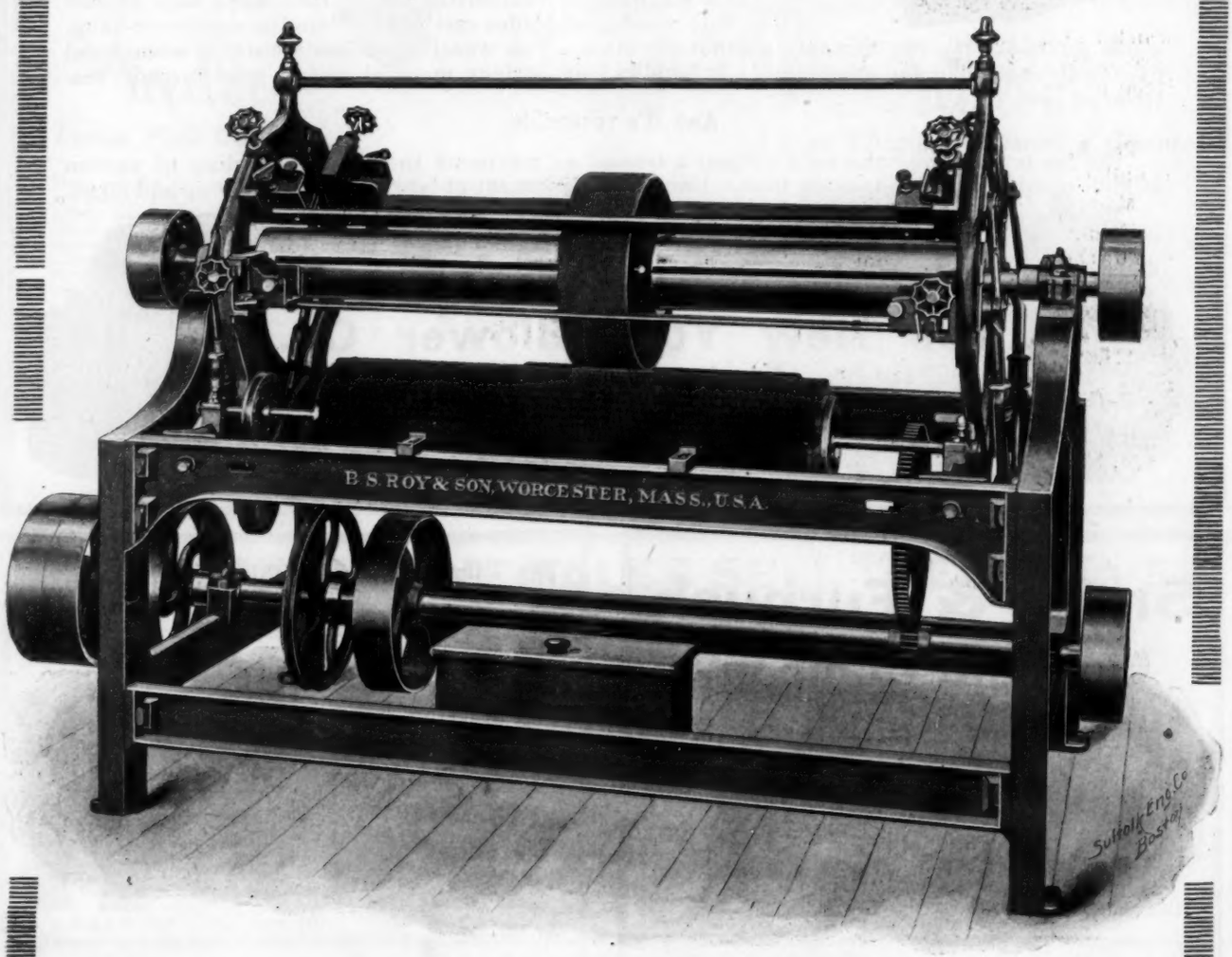
LOOMS

WORCESTER, MASS.

PROVIDENCE, R. I. **PHILADELPHIA, PA.**

Alexander & Garsed, Charlotte, N. C., Southern Representatives.

ROY IMPROVED TRAVERSE EMERY WHEEL TOP FLAT GRINDER



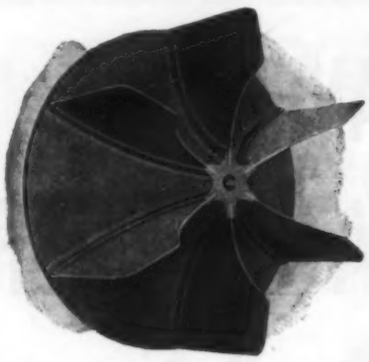
This represents our patent improved grinding frame, complete with a ROY FIVE INCH STEEL SHELL TRAVERSE GRINDER, for grinding four top flats at one time. We also make this style machine to grind two top flats, six top flats, two top flats and two rolls, three top flats and one roll, three top flats and two rolls, etc., at one time. This machine is made very heavy and rigid, being made wholly of iron and steel, and is fitted with our PATENT SELF OILING ECCENTRICS, for traversing the flats while being ground, also our PATENT DIFFERENTIAL MOTION, which does away with one pulley and insures a steady positive traverse of the wheel, black walnut tool box, full length brush of the best quality, and small cylinder for grinding had cards.

When requesting prices, please give whole length of top, length on wire and make of card.

B. S. ROY & SON COMPANY

ESTABLISHED 1868

WORCESTER, MASS.



Here's the Fan Wheel

That Has Made These Reversible Fans So Universally Successful in Cotton Mills

This fan wheel is the secret of the success of our reversible fans for conveying Cotton, Wool, Rags and Stringy Material of any kind.

This fan wheel is constructed with a cone-shape back of cast iron with sheet steel blades cast solid. Note the short over-hang, which makes the fan run smoothly without vibration. This wheel offers less resistance to material passing through than any other wheel. It handles long, stringy material just as good as short material or lint.

And it's reversible.

The fan is built solid and runs without a tremor at maximum speed. No buckling of suction at high speed. No rivets to work loose. Universal adjustment of bearings, not simply up and down.

Made in any size, from 30 inch to 60 inch.

Folder R. F. explains fully. Ask for it today. Our catalogs Nos. 65 and 67 show our complete line of fans and blowers for every class of work.

BUILT RIGHT RUN RIGHT

The New York Blower Co.

Main Office: Archer Ave., and Canal Street, CHICAGO, ILL.

Works: BUCYRUS, OHIO.

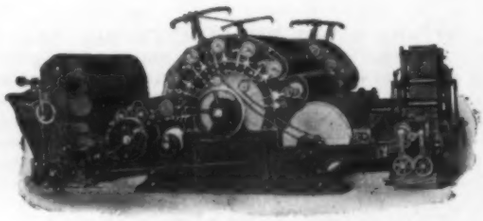
Leader-News Bldg. Cleveland, O. Ridge Arcade Bldg., Kansas City, Mo. 502 Plymouth Bldg., Minneapolis, Minn. 303 B. F. Jones Bldg. Pittsburgh, Pa. 12 Railroad Place, East Orange, N. J.

Smith & Furbush

Machine Company

Philadelphia

Builders of Carding and Spinning Machinery for Cotton Waste Yarns spun on the wood principle, also for wool, asbestos, jute and other fibres.



Two Card Set for Cotton Waste

We also build Cards for all kinds of fibres. Waste Machinery is our specialty. Ask for circulars.

The Palmer Adjustable Thread Guide

For Ring Spinning and Twisting Frames

Easily adjusted.

Extreme accuracy and permanence of setting.

Cheapest of them all.

Mail guide-block for free sample.

Patented and manufactured by

THE I. E. PALMER COMPANY

Middletown, - - - Connecticut.

Name the Output You Require

The mere fact that you want bigger production hasn't the force of **definite instructions.** If you'll name the volume you expect of each operator—set a mark and hold men to it—you can jump your production 7% to 8% with the help of Counters described below.

Veeder

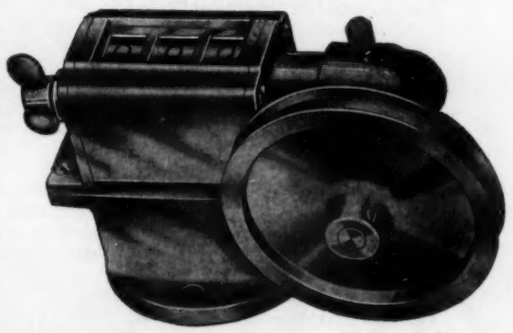
Loom Pick Counter

This counter is designed especially for looms, and is intended to be driven from crankshaft. It is furnished to indicate picks in either hundreds or thousands, the above instrument counting in thousands up to 100,000,000 picks—then repeating. Use this counter as a guide to the operator in completing the number of picks you assign as a day's work. Pay a bonus for work done above the requirement; there's no surer incentive to speeding up.

Veeder

Large Thread-Measuring Counter

The large Thread-Measuring Counter shown at right is for use in connection with spool winders and in other places where it is desired to measure yardage of thread wound on or off spools. The figures indicate yards, and may be reset to zero by turning knob at left. For measuring loom yardage, or length of material turned out by finishing machinery, see the special counters shown in our booklet. Instruct us to send you a copy of the booklet.



The Veeder Mfg. Co., 5 Sargeant St. Hartford, Conn.

NEAT, ATTRACTIVE BALES SELL THEMSELVES

ACME

BALE TIES and BUCKLES give the strength necessary to protect your goods in transit and the neat appearance which helps the sale.—**Specify "Acme" Ties and Buckles.**

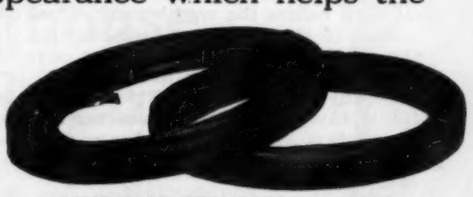
No. 4 Acme Buckle

Stocks carried at Atlanta, Ga., insure prompt shipments.

Also Manufacturers of
ACME STEEL BOX STRAPPING
FLEXIBLE STEEL DOOR MATS
CORRUGATED JOINT FASTENERS

ACME STEEL GOODS CO., Mfrs.

2840 Archer Ave., Chicago. 10-15 Tift St., Atlanta, Ga.
New York City Montreal San Francisco



ACME BALE TIES, LACQ. and GALV.

"SONOCO"

For Winding Cloth

SPIRAL WOUND TUBES

For Winding Yarn

Made of selected Strawboard.

Inspected rigidly to assure Uniformity, Strength and Cleanliness.

Packed carefully so you receive them in perfec condition.

Place your order in good season, with the

SOUTHERN NOVELTY COMPANY, HARTSVILLE, S. C.

AMERICAN SHIPBUILDING CO.

BUILDING SHIPS FOR THE UNITED STATES GOVERNMENT

Offers Seven Per Cent Preferred Stock Fully Participating in Profits and Votes with Common Stock

Unusual Chance for Investment in Gilt-Edged Industrial Securities—Shares $100 Par, Fully Paid and Non-Assessable

The American Shipbuilding Company, organized under the laws of Georgia, whose executive offices are at 11 Broadway, New York City, and whose main offices and shipbuilding plant are at Brunswick, Ga., offers for sale $250,000 of its preferred stock, seven per cent fully participating with the common stock, for the purpose of increasing its shipbuilding facilities.

The Company has contracts from the United States Shipping Board Emergency Fleet Corporation for four cargo-carrying vessels that will aggregate $1,200,000 in cost. These vessels are now building in the Company's yards.

Other contracts are expected. The Company has enough orders in sight to keep its plant running full capacity regardless of the war.

Conditions Excellent for Shipbuilding.

At no time in history were conditions so good for the shipbuilding industry as they are today, now that so many millions of tonnage have been destroyed in submarine warfare. "If the war should cease tomorrow," says Alexander R. Smith, editor of the New York Marine News, "the world would probably be from 10,000,000 to 12,000,000 tons of shipping worse off than before the war began. These ships must be built. If they are not built in the United States, they will be built in some other country. I look to see the South develop more rapidly in shipbuilding than any other section of the country and especially the sections of the South nearest to the steel-producing centers of Alabama. Again, the equable climate of the South should help shipbuilding to a wonderful extent."

Vast Fortunes Made in Shipping.

More fortunes have been made on vessels during the past three years than can ever be computed. Vessels nowadays often pay for themselves on their first trips.

One vessel bought when under the Norwegian flag at a price that seemed out of reason, made one voyage to England recently and loaded and departed on her second voyage, but was lost at sea. The vessel, however, stands on the books of her late owners as showing a profit of one hundred per cent on her purchase price, altho making only two trips.

Another case of a steamer that cost $600,000 to build was operated fourteen months at a net profit of two hundred per cent and then sold for $2,750,000.

There is now in a Southern port a small foreign barkentine which was bought for $1,500 recently and is now loaded with a cargo for Great Britain, on which the freight amounts to $11,000, or seven and a half times the cost of the vessel.

Another authentic instance of extraordinary profit in shipping is the case of a schooner with a deadweight capacity of 1,400 tons which was bought for $30,000. She made one trip and paid for herself. Subsequently she was sold for $60,000. About six months ago her original owner bought her back for $100,000.

This shows why shipbuilding orders are so readily secured.

Advantages and Prospects.

Our location at Brunswick, Ga., is ideal for shipbuilding. It has the best harbor south of Norfolk, in a center of the Southern timber belt, close to the steel markets and with the lowest freight rates from the steel and iron belt of all seaports on the Atlantic or Pacific coasts.

The American Shipbuilding Company is officered and our plant is managed by men who have been closely identified with construction or operation of vessels for fifteen years. An able and conservative administration of the Company's affairs is assured.

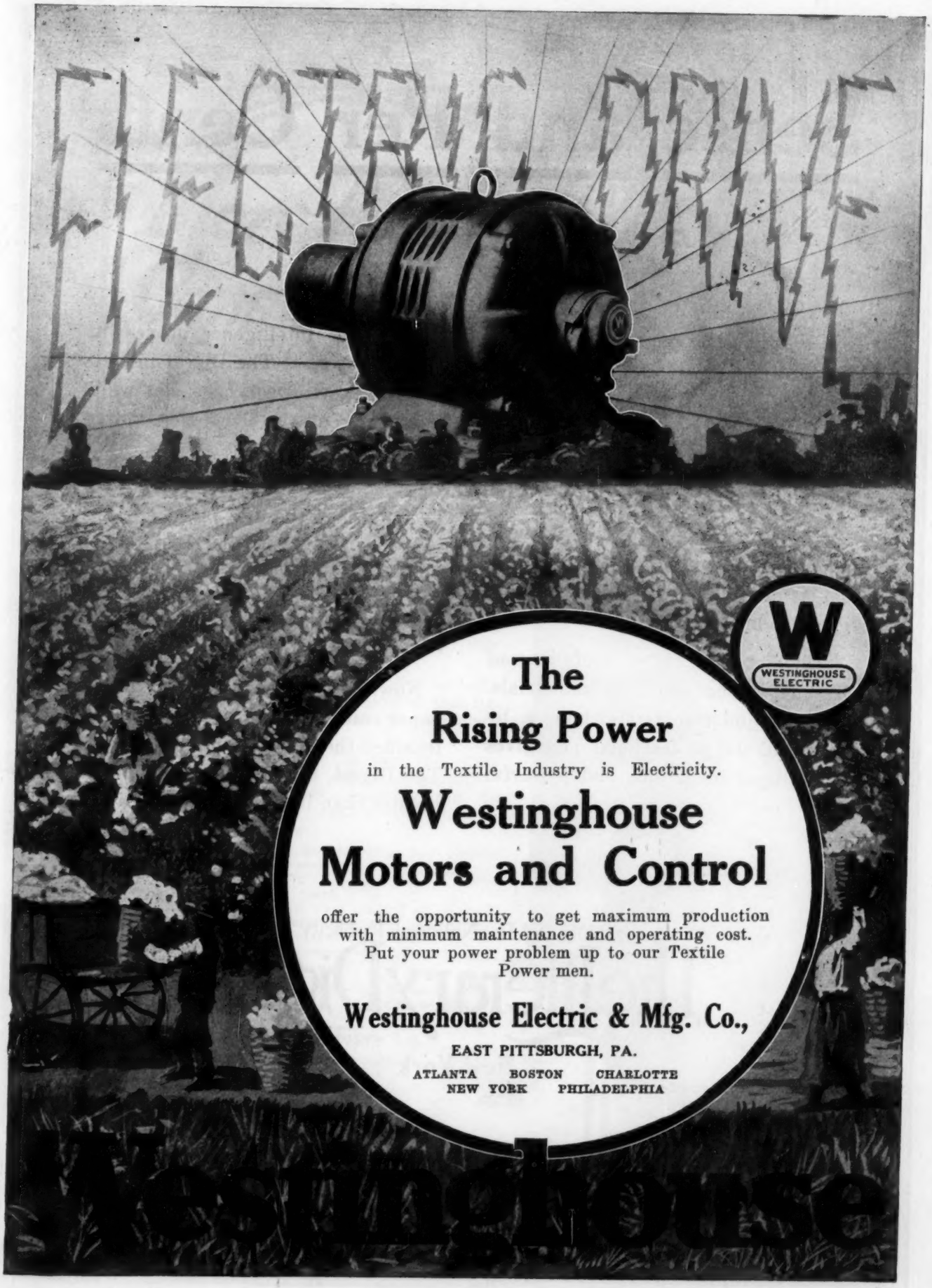
We feel that we can safely predict for shareholders unusually large returns on their investment in the American Shipbuilding Company's stock, besides giving them an interest in a safe, substantial industry that has the confidence and receives the patronage of the United States Government and that will be in position to deserve favorable consideration for the patronage of England, France, Italy and Scandinavian countries to the fullest extent that we can handle their orders.

Write for prospectus at once as only a limited quantity of stock is to be sold.

PHILIPS & WALSH

Agents American Shipbuilding Company

Brunswick, - - - - - - - - - - Georgia.


ELECTRIC DRIVE
W
WESTINGHOUSE ELECTRIC
The
Rising Power
in the Textile Industry is Electricity.
Westinghouse
Motors and Control
offer the opportunity to get maximum production with minimum maintenance and operating cost. Put your power problem up to our Textile Power men.
Westinghouse Electric & Mfg. Co.,
EAST PITTSBURGH, PA.
ATLANTA BOSTON CHARLOTTE
NEW YORK PHILADELPHIA

Sense and Per Cents

Advertising in The Literary Digest is a matter of sense and per cents.

Measure the kind of intelligence—the degree of individual intelligence that finds profit and pleasure in reading The Digest.

How many executives and business men, how many bankers and professional men, need the information it gives them each week?

The fact that it is so carefully read by men in charge of big industrials, banking and commercial houses, by technical and professional men, gives The Digest its unique and powerful influence.

Your own intelligence proves to you the power of The Digest in selling to industrial concerns, but we'll be glad to send you the cold statistics if you want them.

Sense made the advertisers use The Digest in the first place.

Per cents—the volume of business divided by the cost of getting it—makes them continue to use The Digest.

Now, because its national newspaper campaign has widened and intensified the prestige and influence of The Digest, its power is many times greater than it was even a year ago.

IMMEDIATE National Publicity

The Literary Digest

New York

More than half the Roving Cans used in the world are Laminars

Hundreds of thousands of Laminar Roving Cans have been bought since they were first placed on the market, more than a quarter of a century ago.

This exceeds the nation's total output of other vulcanized fibre cans.

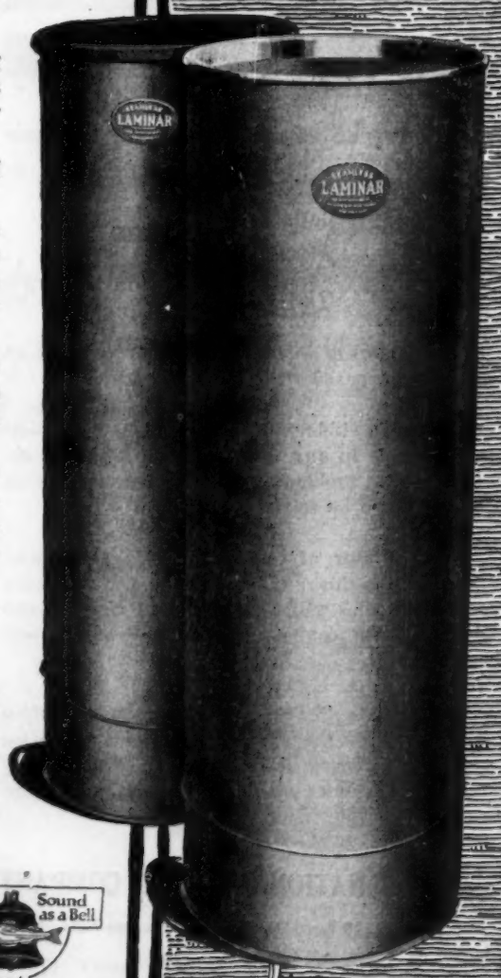
But one reason can be advanced for such widespread preference—Laminar Cans have made good in a large way. They could have attained this high degree of popularity only on merit.

Laminar cans are made of Vul-Cot—the same hard, wear-resisting material that has made these serviceable cans the standard for more than 25 years.

The bottoms are even so that the sliver coils uniformly. The inside is smooth—nothing can catch—the contents can be easily emptied—and there will be no splinters in the yarn.

Laminar cans may be had in all popular types—
Bodies: riveted or seamless.
Tops: metal or fibre.
Bottoms: metal or wood.
Kicking bands: fibre, steel clasped or all steel.
Finish: inside, moisture repelling coating; outside, painted or varnished.
Sizes: standard diameters—9″, 10″, 12″ and 14″. Any heights up to 42″.

Write for illustrated bulletin of Laminar cans, cars, boxes and baskets for textile mills.



American Vulcanized Fibre Co.

Sole proprietors and manufacturers.

New England Dept.,
12 Pearl St., Boston, Mass.
C. C. Bell, Vice Pres., Res. Mgr.
Head Office and Factories, WILMINGTON, DEL.

Up-to-Date Trucking Saves Money

Old Fashioned Trucks as compared with the new

NATIONAL ELEVATING ROLLER BEARING CHAPMAN TRUCKS

are almost as wasteful of labor and real effectiveness as a bucket brigade compared with a modern fire engine.

The detached wooden skids which the National-Chapman utilizes, can be made in any form to lessen wasteful re-handling. They solve problems or interior transportation and disposal that can be solved in no other way.

It was a Western user of the National-Chapman who wrote us recently like this: "It is our opinion that almost any business man who will look into and give careful thought to this system, cannot help but see where it will save him money."

Our Illustrated Catalog C. B. gives a complete description of the National-Chapman Elevating Truck—the Textile Truck. and shows its various sizes and capacities. Send for a copy.

NATIONAL SCALE COMPANY

10 Bank Street, Chicopee Falls, Mass.

Also Manufacturers of National Counting Machines

All Trucks Equipped with Hyatt Roller Bearings.

Leatheroid—The Best

Leatheroid Sales Co., 1024 Filbert Street, PHILADELPHIA, PA.

Hercules
TRADE-MARK REGISTERED

SEAMLESS ROVING CANS

are carried in stock. We can ship up to six car loads upon receipt of your order.

Catalogue No. 21 describing full line of Roving Cans, Warehouse Cars and other receptacles sent on request.

FIBRE SPECIALTY MFG. CO.

Kennett Square, Pa.

New England Agents—The Cronkhite Co., Inc., 185 Devonshire St., Boston, Mass.

Southern Branch—308 Masonic Temple, Greenville, S. C.

FIG 20.

The heavy, strong duck used in all Lane Baskets contains only long-staple cotton, and is woven on our own looms.

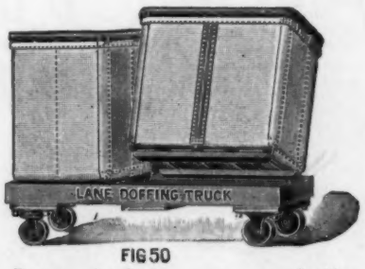


FIG 50

Lane baskets are perfectly smooth inside and outside.

THE TIMES

Demand

Lane

Canvas Baskets

FIG 27

Lane trucks are long-lived, light weight and easy running.

Write for Catalog No. 60

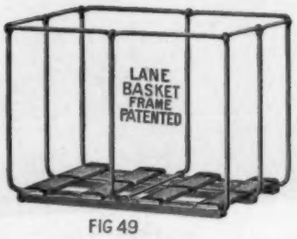


FIG 49

All Lane Baskets are built on this patented *flexible* frame, which yields rather than breaks or bends under strain.

W. T. Lane & Bro., Mfrs., Poughkeepsie, N. Y.

Tare Beam for automatic deduction of tare weight.

Speed Up Your Weighing!

Save Time—Labor—Money

In every industry today, more than ever before, the necessity of eliminating all waste, due to obsolete methods, is vital and in no department has there been more waste than in the weighing and handling of material.

Kron Automatic Springless Dial Scales will solve this problem for you.

"Load & Look"

American Kron Scales

AUTOMATIC Made in U. S. A. **SPRINGLESS**

All Metal Construction

The Kron is the one complete solution to economical, accurate, instantaneous weighing. It performs automatically the whole weighing operation, weighing the material as fast as it can be handled. There's no chance for guessing—no false motions—no time wasted.

The Kron is the strongest, most durable, most efficient scale ever built and is giving satisfactory service in leading Textile Mills and industrial plants of every description.

Made in types to meet all requirements. Any capacity.

Write for catalog and complete information.

American Kron Scale Co.

422 East 53rd St., New York

Branch Offices: Boston, Providence, Hartford, Philadelphia, Pittsburgh, Baltimore, Chicago, Cleveland, Detroit, Minneapolis, San Francisco, Wilson, N. C.

Southern Office, 405 Urban Bldg., Louisville, Ky.

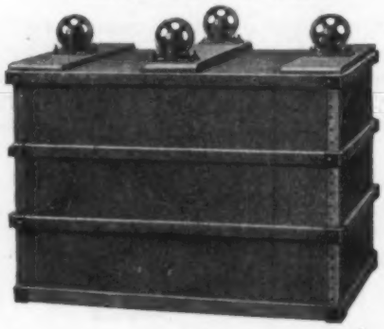
The Buyer Who Knows

Will Always Buy

Keystone Receptacles

Keystone Quality is the Standard

FOR ALL MILL BUYERS



Warehouse Car Showing Bottom Construction.

Noted for their Construction, Quality and Durability.

The superiority of **KEYSTONE Products** is the result o our years of experience in the manufacture of fibre products

Make no purchases of mill receptactes until you have informed yourself on the quality and prices of **KEYSTONE Products.**

Send your address on a postcard, *now*, and we will forward Catalogue "D."

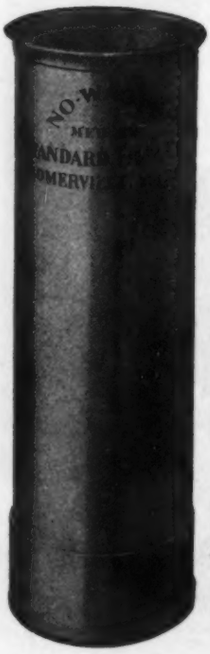
KEYSTONE FIBRE COMPANY, Yorklyn, Del.

Southern Agent, H. C. Smith, Greenville, S. C.

THE

"NO-WASTE"

Seamless Roving Cans



"NO SEAMS OR RIVETS"

The "NO-WASTE" Seamless roving cans have a reputation for quality and smoothness wherever roving cans are used. Practical experience has taught mill men in all sections of the country that ultimate economy can be achieved only with an equipment of "NO-WASTE" Seamless Cans.

We also make a strictly high-grade plain fibre body or steel clad box or car, doffing trucks and special shaped receptacles.

STANDARD FIBRE COMPANY

25 Miller Street

SOMERVILLE, MASS.

WHITE TRUCKS

One of a Fleet of White Trucks owned by M. Goldsmith & Bro., Charleston, S. C.

FOR years it has been the White policy to build only the best. There is no short cut to efficiency and endurance in a truck. Only the pick of material and the most refined construction will produce the White standard of service. The White Truck has always been more economical than any cheaper make. In high pressure operation this superiority becomes something more important than economy; it means more days in active service—a much greater volume of performance.

The largest users of motor trucks in this country recognize the White value. They buy it in fleets and add to these fleets year after year, based upon experience. They know the real value of a motor truck. Their cost records tell the story.

THE WHITE COMPANY
CLEVELAND

Largest Manufacturers of Commercial Motor Vehicles in America

EVERY AUTOMATIC TRUCK CUTS FACTORY COSTS

AUTOMATIC Storage Battery Electric Trucks are saving the wages of 3 to 5 men and in some instances even more, in many textile mills. Most efficient, economical means of interplant transportation.

Write for complete facts — NOW.

The Automatic Transportation Co., 2933 Main Street, Buffalo, N. Y.

The only truck manufacturers to receive gold medal and highest award at the San Francisco Exposition. Pioneer manufacturers of industrial trucks.

SPAULDING FIBRE RECEPTACLES

Adopted as the standard for service by the Largest Manufacturing Plants in the country.

Seamless Roving Can

SPAULDING FIBRE PRODUCTS are becoming part of the equipment in up-to-date textile manufacturing and jobbing establishments.

They are recognized by textile men throughout the country as perfection in this class of product.

They are made of the most superior quality of fibre, and steel reinforcements throughout protect the fibre from hard knocks.

Their lightness, combined with utmost strength and durability, means less effort, and a saving of time and money.

For sale by all leading mill supply houses. Catalog and detailed information gladly sent on request.

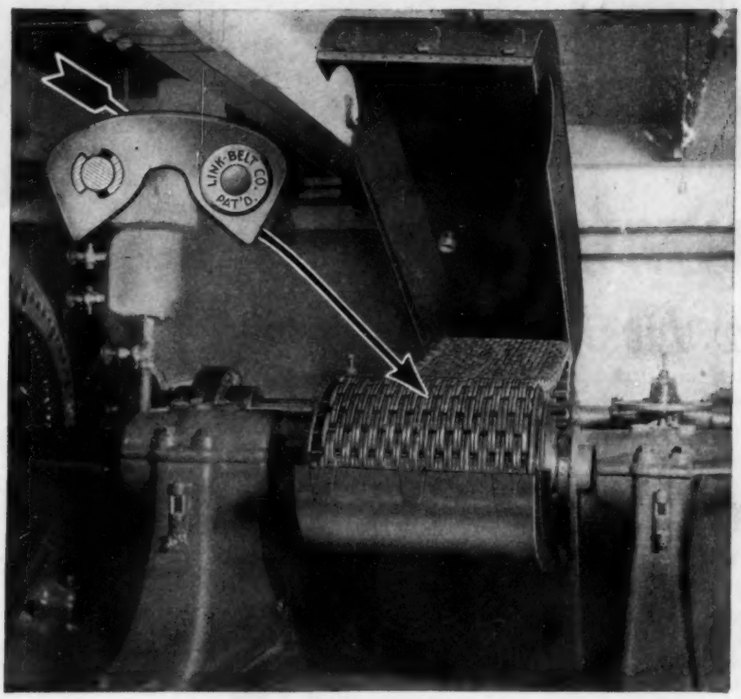
J. Spaulding & Sons Co.
ROCHESTER, NEW HAMPSHIRE

Style B. Fibre Box.

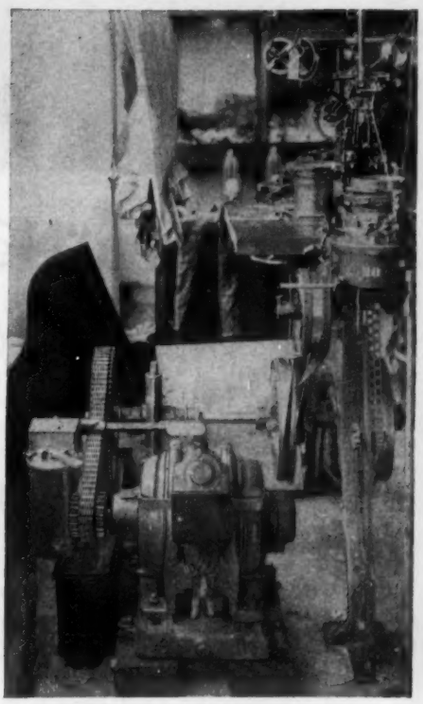
Style C. Steel Clad Truck

Style A. Fibre Truck

The Ideal Drive for Textile Machinery



540 H. P. Drive—Arnold Print Works, North Adams, Mass.



3 H. P. Drive Operating 15 Invincible Jenckes Full Automatic Heavy Ribbers.

NEVER before has the Textile Industry been called upon to deliver more than right now. To supply the great needs of our government alone you must command every means at your disposal that will turn the raw product into finished material, in the quickest and most efficient manner.

Give every element in your manufacturing system the acid test.

LINK-BELT SILENT CHAIN DRIVES

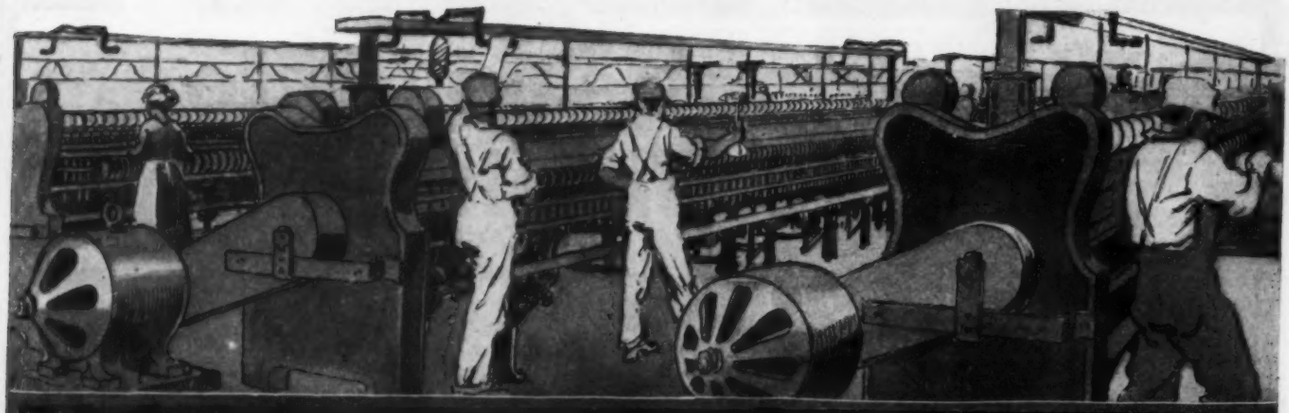
are result producers. They show their efficiency in the finished product by bridging that gap between the prime mover and driven machine with an efficiency of over 98%.

"Flexible as a belt—Positive as a gear—More efficient than either."

For assistance in Figuring details and costs of Silent Chain Drives, send for 128-page Data Book No. 125

LINK-BELT COMPANY PHILADELPHIA CHICAGO INDIANAPOLIS

New York	299 Broadway	Detroit	732 Dime Bank Bldg.	Denver	Lindrooth, Shubart & Co.
Boston	49 Federal St.	Minneapolis	418 S. Third St.	Louisville, Ky.	F. Wehle, Starks Bldg.
Pittsburgh	1501 Park Bldg.	Kansas City, Mo.	407 Finance Bldg.	Knoxville, Tenn.,	D. T. Blakey, Empire Bldg.
St. Louis	Cent'l Nat'l Bank Bldg.	Seattle	576 First Ave., S.	Birmingham,	McCrossin & Derrah, Am. Tr. Bldg.
Buffalo	698 Ellicott Square	Portland, Ore.	1st and Stark Sts.	New Orleans,	C. O. Hinz, Hibernia Bk. Bldg.
Wilkes-Barre	2d Nat'l Bank Bldg.	San Francisco	461 Market St.	Charlotte, N. C.,	J. S. Cothran, Com. Bk. Bldg.
Cleveland	429 Rockefeller Bldg.	Los Angeles	161 N. Los Angeles St.	Toronto, Can.,	Canadian Link-Belt Co., Ltd.



"NON-FLUID" OILS

Now Designated as

SLO-FLO

The Non Fluid oils, manufactured for many years by the Swan & Finch Company exclusively for the N. Y. & N. J. Lubricant Company, will in the future be distributed by the Swan & Finch sales organization and agencies, under the name of Slo-Flo—backed by the Swan & Finch Atlas Trade-mark and the Swan & Finch Atlas guarantee of quality.

SLO-FLO

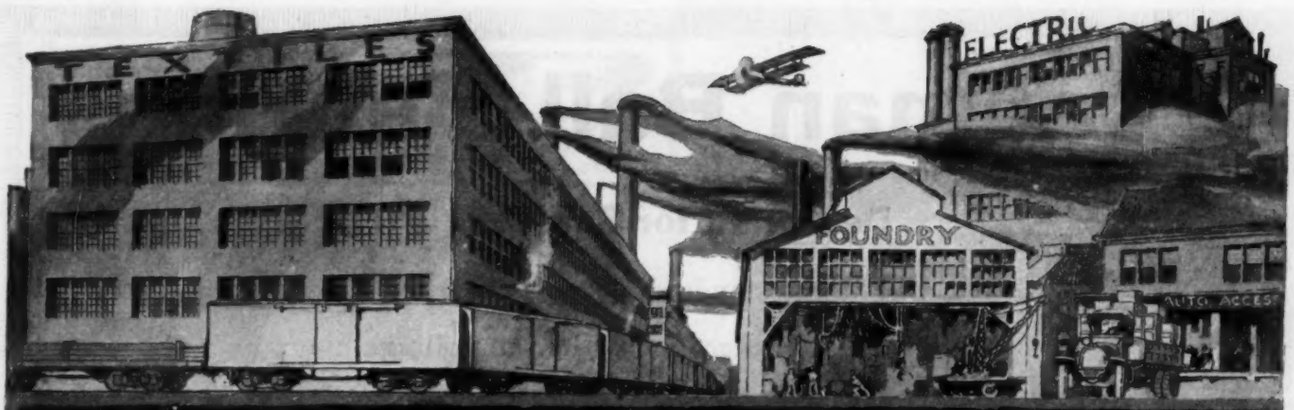
These lubricants have been giving satisfactory and economical service in textile mills for many years; a class of service requiring exceptionally high grade lubricants, which will not drip, climb or spatter, and which will give maximum lubrication protection to expensive, high speed machinery, and at exceptionally low lubrication cost.

The consistency gradations of this high quality, economical lubricant, cover a complete line from the very light grades for delicate, high-speed machinery, with sufficient flowing quality to insure complete lubrication at all times, to the extremely heavy grades for the more massive work of heavy machinery, ball bearings, shaftings, etc.; even in the heavier grades, it will not stiffen like grease.

It will function properly under excessive heating conditions.

Especially qualified as producers of special lubricants since 1853, the Swan & Finch Engineering Department will gladly study the individual requirements of customers, for recommendations of particular applications.

SWAN & FINCH
AND
COMPANY
NEW YORK
Quality Oils and Greases Since 1853



Grease the Wheels of Industry

Conservation of machinery is a matter of both personal profit and patriotic duty. Correct lubrication is vital to continuous and efficient operation and to the very life of machinery, whether in the smallest shops or in the huge textile mills, railways and manufacturing plants.

Special Oils and Greases

sometimes a comparatively small item in plant purchasing—have, with scientific investigation, become more and more recognized as important factors, *because of their effect on machinery operation and upkeep.*

The national necessity for efficient and economical machinery operation has awakened owners and operators as never before to the importance of scientific selection of special lubricants for industrial machine parts.

The Development of Special Oils and Greases for Special Machine Lubrication and Industrial Manufactures.

The Swan & Finch Company, for 64 years producers of special oil and grease products, have through their wide experience developed a complete line of high quality lubricants for special machine uses, and special oil combinations for industrial manufacture in the *textile*, foundry, machine shop, railway, electrical, soap, leather, automobile, and other industrial fields.

Of practical economy to wool and worsted manufacturers is the famous S-F Specialty—Textul. Textul combines all the good qualities of Red and Lard Oils for wool oiling, in addition to being offered at large price economies over these oils. Textul saponifies readily, carries well through the carding process and is easily washed out—needs no alkali added for emulsion.

(For other S-F Specialties see left-hand panel.)

Special Greases.

As the original manufacturers of mineral oil greases, the Swan & Finch organization have always given particular attention to the manufacture and use of these products.

Cupese, for instance, is the solution offered by Swan & Finch Engineers for use wherever a cup grease is required.

Correspondence is invited by the Engineering Department from Manufacturers and machinery owners on all lubrication problems. Where complete information is received, engineering assistance and advice will be gladly and frankly given regarding particular problems.

This complete line, bearing the Swan & Finch Atlas trade mark and guarantee of quality, is now being offered through Swan & Finch sales organization and distributors.

To factory, mill and railway supply, hardware, oil, and automobile accessory jobbers and dealers:

An unusual cooperative distribution plan is open for the development of a large, permanent, profitable selling connection for the world-known S-F Atlas grease and oil specialties, to manufacturing and industrial plants, railways, and auto accessory distributors.

Write for complete description of products, prices, plans and territorial arrangements.

SWAN & FINCH AND COMPANY
NEW YORK
Quality Oils and Greases Since 1853

Specialties:

SLO-FLO

A slow-flowing, high quality, economical lubricant, especially adapted to high speed machinery. Its clinging qualities prevent wasteful dripping and spattering while giving maximum lubrication and large economies over ordinary oils. It will not stiffen like ordinary greases and yet will function properly under excessive heat conditions.

ASBESTESE

An asbestos wool-mixed grease combination for correct car journal lubrication. An improvement on oil-soaked waste, where oil drips and necessitates frequent re-packing. Asbestos will lubricate efficiently without re-packing for from four to eight months—under all conditions—and will stand up at 30° below and 300° above zero.

CORUL

A combination of special oils that meets the 11 requirements of perfect core-making for malleable and grey iron castings. Corul is made to meet the requirements of the most exacting job, and yet is economical enough to justify its use for all classes of work.

TEXTUL

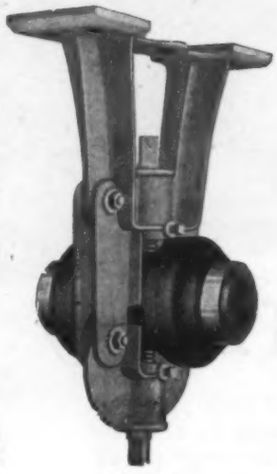
A special high quality oil product for wool and worsted manufactures produced after extensive research work by Swan & Finch Engineer. Commands all the good qualities of Red and Lard Oils and yet is offered at far less cost. Saponifies readily, carries well through the carding process and is easily washed out—needs no alkali added for emulsion.

GEARESE

A correct lubricant for motor car transmission and differentials. Reduces friction, reduces wear. Follows the gears continuously, leaving no spots where metal can touch metal. Unaffected by temperature changes. Insures a silent, smooth-running car.

Also Aerul, Talese, Cupese, Motul and Marinul.

Chapman Ball Bearings

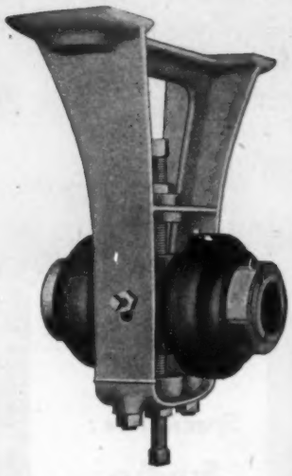


Style A

Designed for Shafting

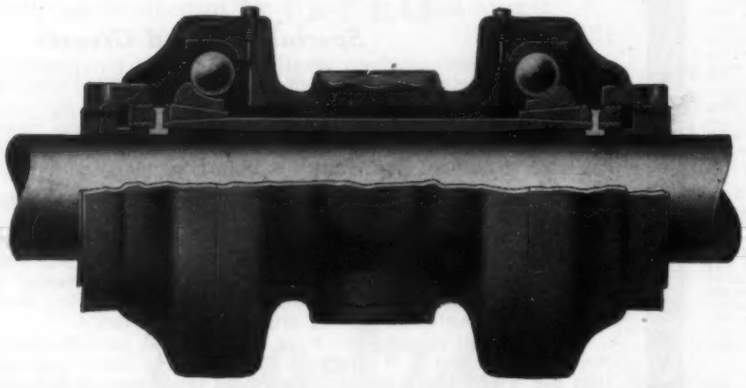
will fit any standard hanger frame, and are interchangeable with self oiling boxes of the same shaft size.

You can obtain more uniform product and eliminate oil-spoiled goods at a decreased cost for power by using



Style B

Save 75% Friction



Reduce 95% Lubrication

CHAPMAN BALL BEARINGS

for

Style C

Shafting — Counter Shafting

Loose Pulleys — Friction Clutches

Mule Stands — Guide Pulleys

Power Tables, etc.

Style D

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TRANSMISSION BALL BEARING CO., Inc.

32 Wells Street **Buffalo, N. Y.**

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CRESSON-MORRIS CO.

POWER TRANSMITTING MACHINERY

Camouflage

CAMOUFLAGE, the art of coloring things so that they appear different from what they really are, finds a distinct niche in the business of war.

Camouflage, however, has no place in the business of business. It has no caste in the buying of power transmitting machinery. Performance alone determines its value and performance is a quality that must be built into the product; it cannot be smeared on a product with a brush or be there by reason of word artists' colored claims.

Cresson-Morris Power Transmitting Machinery does not have to depend on camouflage to get sold. It gets sold on merit and it stays sold on performance. Fifty-odd years of manufacturing experience and the constant concentration of a specially trained engineering staff on transmission problems assures maximum performance and minimum breakdown.

Before you buy; after you buy; or even if you do not buy at all our Engineering Department is at your service.

CRESSON-MORRIS COMPANY

ENGINEERS — FOUNDERS — MACHINISTS

PHILADELPHIA, PENNA.

USE THE COUPLING

SYSTEM OF ROPE DRIVING

This coupling is for use on the English system rope drive and controls all stretch of the individual ropes in this system.

Hunt Coupling ready for use.

You can shorten the ropes at any time by simply twisting the coupling, which twists up the strands of the rope and maintains the original rope diameter.

The shortening is done with the rope in position on the pulleys and all splicing costs and delays are avoided.

Ask for catalog W-15-1 giving full information.

C. W. HUNT CO., Inc.,

WEST NEW BRIGHTON, N. Y., U. S. A.

45 Broadway, N. Y. City. Fisher Bldg., Chicago.

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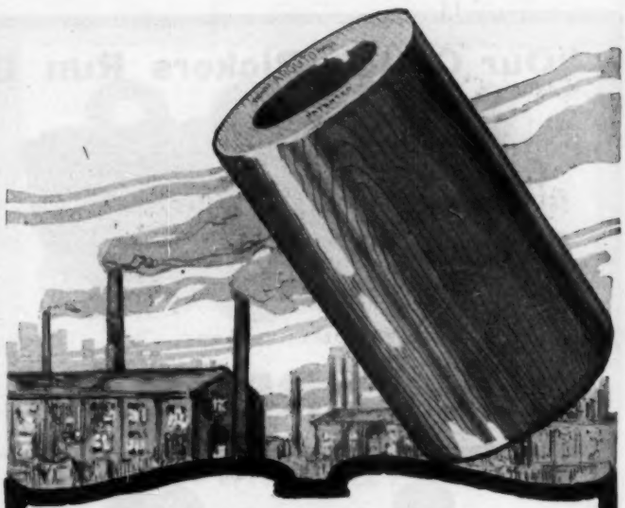

$1,290,809.54 Saved

on operating cost in 17 years

Nearly twelve years ago a manufacturer of cotton machinery wrote us about **Arguto Bearings:**

"It (the knife grinder) was set up in February, 1901, and the bushings have not been changed or touched since we put them in. * * *

"This bushing, we think, is put to a very severe use and when we first started we were in doubt as to whether it would give satisfaction or not. We had previously worn out three composition bushings which we had made very carefully with the grooves and also with holes to hold as much oil as possible, and they were made of the best bronze metal. They wore out within three or four months."

This concern's first order for **Arguto Oilless Bearings** was dated 1900. In 17 years it has ordered 10,046 **Arguto Bearings,** which is much less than some of our clients order in a single year.

(To be continued in the next issue.)

Or, if you are interested and want to save time, write now to

Arguto Oilless Bearing Company

148 Berkley St., Wayne Junction

PHILADELPHIA

Outwears the best bronze metal.

Smoother than Grease.

Arguto NON-METALLIC

"Our Cotton Pickers Run Day and Night and Run Cool"

PICKER BOX DISASSEMBLED.

says the Blood Knitting Co. They state that prior to their installation of Hubbard Ball Bearing Boxes on their pickers, the power consumption averaged 4.35 H.P. per beater. Hubbard Boxes reduced same to 3.56 H.P.—a saving of .79 H.P. per beater, and *the beater speed was maintained uniform.*

Don't you think that a 19% power saving like this, not to speak of the increased efficiency of your pickers, warrants the installation of Hubbard Ball Bearing Boxes. Our bulletin is well worth reading. Tell your stenographer to drop us a line for it today.

HUBBARD MACHINE COMPANY, Worcester, Mass.

L. L. NAKASHIAN, Charlotte, N. C., Room 1114 Independence Bldg., Sou. Agent.

HUBBARD BALL BEARING BOXES

Long Life Bushings in Spite of Neglect.

For Efficiency and Economy

Oil-less

"NIGRUM" "BOUND BROOK"

(Impregnated Wood) (Graphite-and-Bronze)

Bearings

Trade Mark Reg. U. S. Pat. Off.

You'll never have to stop your machine, due to the neglect of someone to properly oil it, providing you use NIGRUM or BOUND BROOK Oilless Bearings.

They run smoothly and evenly without oil, grease or attention. They will save you money by saving you oil, and eliminate much of the wear and tear upon the working parts of the machine.

Write for Interesting Booklet, "Oil-less Bearings."

BOUND BROOK OIL-LESS BEARING CO.

10 Church St., BOUND BROOK, N. J.

All Genuine Graphited "Oil-less Bearings" have always been made at Bound Brook, N. J., in the United States of America.

A Study in Expansion

1913
BIRD-WILCOX CO. ATLANTA, GA.
OXYGEN
First in the Field

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OXYGEN
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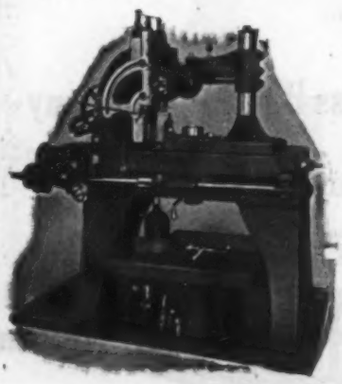
1917
BIRD-WILCOX CO.
OXYGEN
Chattanooga Savannah
Charlotte Atlanta



Full Automatic, Semi-Automatic and Hand Operated

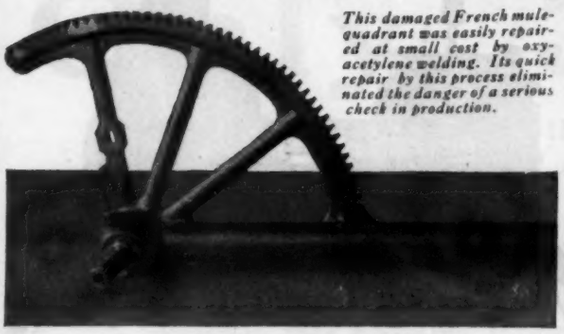
Gear Cutting Machines

Especially adapted for use in Cotton Mills. Hundreds now in use. Send for Special Circulars.

The D. E. Whiton Machine Co.,

NEW LONDON, CONN.

Oxy-Acetylene Welding and Cutting



This damaged French mule-quadrant was easily repaired at small cost by oxy-acetylene welding. Its quick repair by this process eliminated the danger of a serious check in production.

Cuts Repair Costs for Textile Mills

Oxy-acetylene welding is saving textile mills thousands of dollars monthly.
Before this process was used one of the biggest leaks in the profits of textile mills was the item of replacement of broken and worn machine parts.

Using the Prest-O-Lite Process America's foremost textile mills are now making immense savings of time and money on repairs. In many cases instead of buying new parts when machines break down, these mills repair the damage in quick time at small cost by welding. Formerly the broken machines were idle until new parts arrived, which often meant days of costly delay.

Investigation shows that a large number of mills, both North and South, are using this process with great profit. Are you reaping the benefits it provides? If not, it will pay you to investigate.

Prest-O-Lite PROCESS

Employs both gases (acetylene and oxygen) in portable cylinders. Prest-O-Lite Dissolved Acetylene (ready-made carbide gas), is backed by Prest-O-Lite Service, which insures prompt exchange of full cylinders for empty ones. Provides dry, purified gas, insuring better welds, quicker work and lower cost, and also avoids large initial outlay and heavy depreciation.

Necessary equipment is not expensive. We furnish high-grade welding apparatus for $75 (Canada $100); acetylene service at additional cost. Adaptable for oxy-acetylene cutting by the addition of special cutting blowpipe. Thorough instructions are furnished free to every user of Prest-O-Lite Dissolved Acetylene—any average workman who understands metals can learn the process quickly and easily.

Send for special bulletin dealing with textile mill repairs by oxy-acetylene welding. It may point out ways to overcome repair problems in your mill. Write today.

The Prest-O-Lite Company, Inc.

U .S. Main Office and Factory, 836 Speedway, Indianapolis
Canadian General Office, Dept. A-5, Toronto, Ont.

59 Branches and Charging Plants.

World's Largest Makers of Dissolved Acetylene

99 50/100 % PURE

Countrywide Service

From coast to coast BURDETT OXYGEN SERVICE insures your securing in the quickest time the purest oxygen made.

When you use BURDETT OXYGEN you are reducing your welding costs to the minimum, for BURDETT OXYGEN is 99½% pure, and you know it takes the purest oxygen obtainable to insure the most economical and efficient welding.

And when you order BURDETT OXYGEN from the service station nearest you, you are saving time, for every order is shipped the same day it is received.

Mail or telephone your order to one of the following stations:

Chattanooga, Tenn.	Oklahoma City, Okla.
Fort Worth, Texas.	St. Louis, Mo.
Denver, Colo.	Chester, Pa.
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Chicago St. Johns Court. **Denver** Gas and Electric Building.

BURDETT OXYGEN

"The Best by Test"

OXY-ACETYLENE WELDING is not an experiment in the repair shop, but some concerns are still experimenting with inferior apparatus constructed without knowledge and experience of what is required, and poor results are blamed on the process instead of on poor judgment in the selection of apparatus.

The great success of oxy-acetylene welding has been accomplished with DAVIS-BOURNONVILLE APPARATUS, which leads the world in range, efficiency, and number of successful users. It is backed by the longest service and experience, and the greatest development.

DAVIS-BOURNONVILLE CO.

General Offices and Factory, Jersey City, N. J.

OXY-ACETYLENE WELDING
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New York	Pittsburgh	Chicago	Seattle
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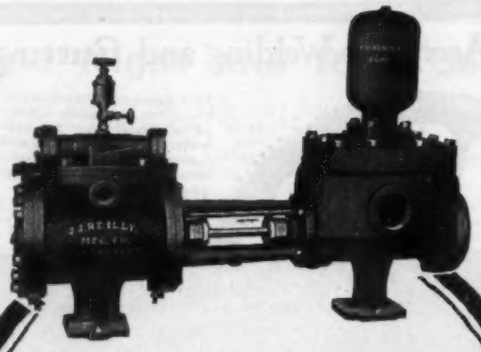

When It Comes to Pumps

you will find that Grainger Pumps are built to give satisfaction first and last.

Every Grainger Pump is built according to approved engineering principles and tested to its full rated capacity before leaving our plant.

There is no guess work in the construction of Grainger Pumps. **We know** that every Grainger Pump is right before shipping.

We Solicit Your Inquiries

J. J. REILLY MFG. COMPANY,

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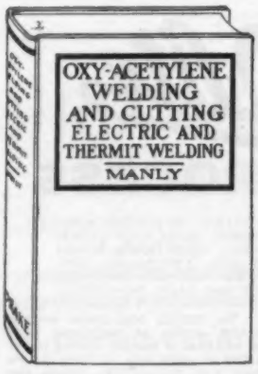
121 North 10th St., Louisville, Ky.

Grainger Pumps

"Oxy-Acetylene Welding and Cutting, Electric and Thermit Welding."



By Harold P. Manly, Chief Engineer American Bureau of Engineering.

The extensive use of the oxy-acetylene flame in welding and cutting has created an active demand for a practical book explaining this process. In addition to the oxy-acetylene welding are included electric and thermit welding, also a chapter on hand forging and welding. In order to make a complete book on welding, the following subjects have been included: annealing, tempering, hardening, heat treatment, and the restoration of steel.

Much practical information is given on the uses and characteristics of the various metals. Thus, in this book the manufacturer and the workman will find all necessary information and data required in handling any kind of welding.

215 Pages, Fully Illustrated, Cloth....$1.00
Leather, stamped in gold, red edges.... 1.50

W. R. C. Smith Publishing Company

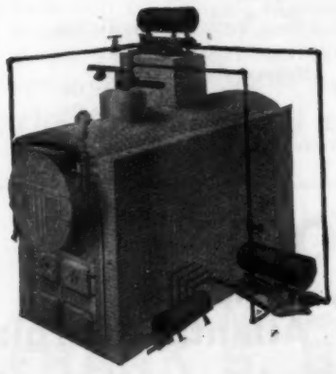
Atlanta, Ga.

Only 3%

of the coal you burn is actually utilized in your production operations

EVERY PIECE OF COAL of a given composition contains a definite amount of potential energy. Combustion liberates this potential energy in the form of heat energy.

But do you realize that only 3% of the original heat in the coal you burn is actually utilized in your production equipment including dryers, presses, cans, calenders, and other steam heated equipment?



The **Morehead**

Back to Boiler

SYSTEM

Helps Cut Down This Loss

With the inexpensive Morehead System installed in your plant you reduce this enormous loss in two distinct ways.

(1) You keep every drop of condensation drained from your steam lines —and every inch of heating surface consequently working at the highest possible thermal efficiency.

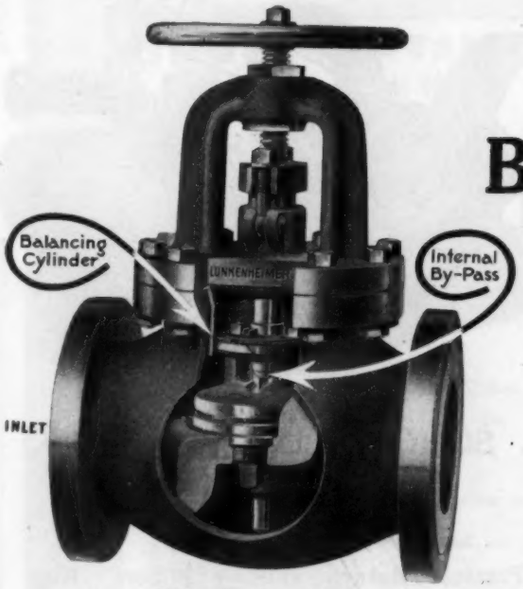
(2) You rush this condensation right back to the boilers as pure hot feed water—in just the condition to use again with the least consumption of fuel.

The Morehead System costs comparatively little to install—and soon pays for itself in saving of fuel—to say nothing of improved heating results. Write for complete particulars and suggestions on your own situation.

MOREHEAD MFG. CO.

DETROIT, Cotton Mill Dept. Michigan

Efficiency at the throttle!



Write for descriptive booklet No. 579-AK

The LUNKENHEIMER Balanced Throttle Valve

Designed expressly for throttling steam power units, it incorporates special features peculiarly fitting it for this duty, and contributes materially to operating efficiency.

The first turn of the handwheel opens the internal bypass, relieving the pressure above the disc; gives perfect balance to the valve and facilitates its free and easy operation. Another function of the bypass is to warm the unit before starting. This also reduces to a minimum the wear on the main valve seat, which is greatest when a valve is but partially opened.

The main valve disc and seatring have spring seating surfaces, which compensate for any distortion that may be caused by expansion or strain. The seating surfaces are regrindable and all parts are made to gauge and are renewable.

Made in Globe and Angle Patterns, in six material combinations to suit various pressures and superheat.

Specify Lunkenheimer and insist on having the genuine. Your local dealer can supply you; if not, write us.

THE LUNKENHEIMER CO.

—"QUALITY"—

Largest Manufacturers of High Grade Engineering Specialties in the World.

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26-9-10

QUALITY FIRST

Should be the determining factor when buying Machine Tools and Mill Supplies. The companies we represent are the manufacturers of the best in their line—assuring best quality—backed by our personal guarantee, "Satisfaction in every transaction."

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Cleveland Open Side Planers
Landis Bolt Cutters
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Gould & Eberhardt Shapers and Gear Cutters
Cincinnati Bickford Upright and Radial Drills

E. O. Partridge Emery Grinders
Armstrong-Blum (Marvel Power Hack Saws)
Greenerd Arbor Presses

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SEEGER-WALRAVEN COMPANY

Machine Tools---Mill Supplies---Foundry Equipment

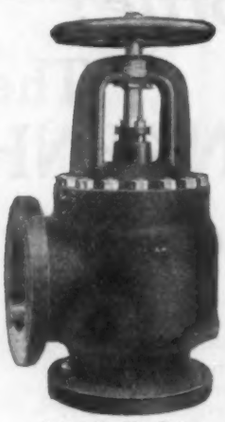
38 West Alabama Street **Atlanta, Georgia**

"Quality is Economy"

FOSTER VALVES

Reliability Their Main Feature

Every Foster Automatic Non-Return Stop Valve Brings Sure Protection



Automatic Non-Return Stop Valve.

The plant where it is installed is safe when a boiler tube bursts for the disabled boiler is immediately cut out from the rest of the battery.

The men making boiler repairs are safe for steam cannot enter a cold boiler, nor can it enter a boiler in which steam is being raised, as long as Foster Automatic Non-Return Stop Valve is on duty.

The material and workmanship that go into these valves, being the best obtainable, give permanent reliability and long life.

Valve is thoroughly cushioned, valve seats are renewable and specially constructed to eliminate leakage—made in globe or angle bodies of cast steel and semi-steel.

Write today for complete description of this or any other Foster Steam Specialties for the control and regulation of steam, water, gas or air pressure.

Foster Engineering Co.

Newark, N. J.

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712 Harrison Bldg.	Philadelphia, Pa.
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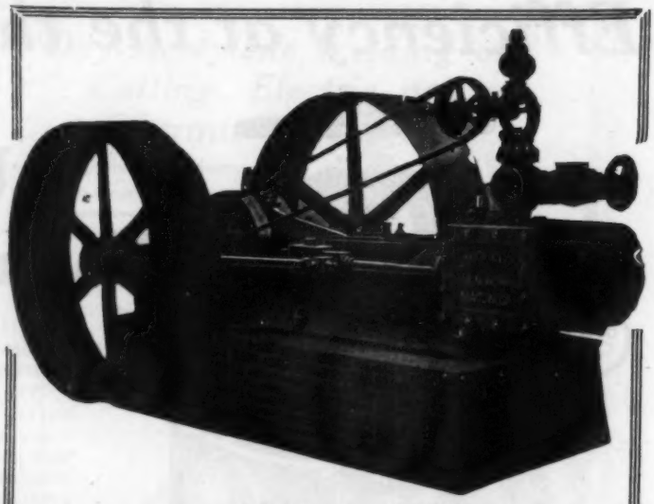


J. S. SCHOFIELD'S SONS CO., Macon, Georgia

MANUFACTURERS OF

High Pressure Return Tubular Boilers, High Grade Stationary Steam Engines, Tanks, Stacks, Stand Pipes.

Heavy Castings and Wrought Iron Works.

BETZ FIRST AID AND ACCIDENT CABINET $7.75

Recognized as the most complete and practical outfit of its kind. Endorsed by Industrial Surgeons and Welfare Bureaus in every section of the country.

This cabinet is a small and compact arrangement, containing all necessary First Aid supplies and may be easily carried about the factory or hung on the wall. The cabinet is made of heavy sheet steel, finely enameled. It is built to hold standard containers of various supplies, including individual racks for bottles in the lower shelf. This is a feature found only in the Betz First Aid cabinet and its value is evident as it prevents the bottles from tipping, breaking or spilling.

Complete and Comprehensive Directions

For First Aid are furnished with each cabinet, being pasted on the inside of the door and in addition an authoritative First Aid Manual is included. With the aid of these directions it is easy to train and teach workmen how to apply intelligent First Aid pending the arrival of the Doctor. The directions are so clear and plain that the ordinary lay person can easily grasp the instructions.

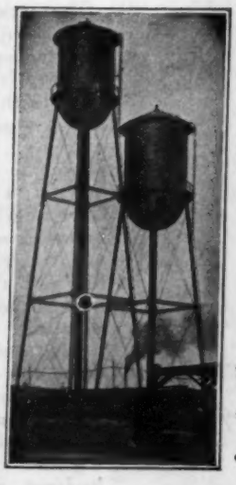
The Betz First Aid and Accident Cabinet includes the following Supplies:

9-1 inch Gauge Bandages,
9-2 " " "
3-3 " " "
4-2 oz. Pkg. Absorbent Cotton.
24 Picric Acid Gauze Pads, (for burns)
6 Pkgs. Plain Gauze,
1 Roll Z. O. Adhesive Plaster,
1 Tourniquet,
1 pr. Dressing Scissors,
1 pr Thumb Forceps,
12 Wooden Tongue Depressors,
6 Cotton Applicators in glass tube,
1 Eye Dropper,
Safety Pins, assorted sizes,
12-12 inch Applicators,
1 Medicine Glass, graduated,
1 Eye-Cup or Douche,
1-2 oz. bottle Boric Acid,
1-2 oz. bottle Alcoholic Iodine,
1-2 oz. bottle Aromatic Spirits Ammonia.
1-2 oz. bottle Jamaica Ginger.
1-2 oz. bottle Castor Oil.
2-3 oz. tubes Burn Ointment.

2X4600. Betz First Aid and Accident Cabinet, complete with supplies as listed above only $7.75

FRANK S. BETZ CO., Hammond, Ind.

TOWERS and TANKS That are Built Right



Boilers,

Structural Steel Work

Sheet Steel and Plate Work

Boiler Tubes, Castings, Etc.

Tell us what you want and let us quote prices.

The Walsh & Weidner Boiler Co.
Chattanooga, Tenn.

You Can't Depend on a Human for Accurate Time

The most experienced and accurate timekeeper is human—and you know its' human to err.

If you are going to comply with the Keating-Owen Bill, you must avoid the possibility of human error. A time record, to be absolutely accurate and indisputable, MUST be mechanically errorless.

To protect yourself and your employees, and to satisfy the government inspectors, you cannot possibly find a better or more accurate mechanical timekeeper than the

HOWARD Time Recorder

It provides a perfect time record of each employee, the accuracy of which is indisputable. This recorder proves conclusively when the employee is late for work and the exact number of hours and minutes he works.

The absence of complications in the mechanism of the Howard Time Recorder is a guarantee of its accuracy and durability.

Howard Time Recorders are now in use in a number of well-known mills, and more and more mills are installing them.

Catalog and full information sent gladly upon request. Drop us a line today.

Howard Time Recorder Co.

67 Maiden Lane, Room 705, NEW YORK CITY
Jewelers Building, 373 Washington St., Room 38, BOSTON, MASS.
103 State St., Room 805, CHICAGO, ILL.

QUALITY FIRST

Should be the determining factor when buying Machine Tools and Mill Supplies. The companies we represent are the manufacturers of the best in their line—assuring best quality—backed by our personal guarantee, "Satisfaction in every transaction."

Selling Representatives:

Lodge & Shipley Lathes
South Bend Lathes
Rockford Lathes
Acme Turret Lathes
The Skinner Chuck Co.
Weaver Garage Equipment

Cincinnati Millers and Grinders
Cincinnati Planers and Boring Mills
Cleveland Open Side Planers
Landis Bolt Cutters
Landis Grinders

Gould & Eberhardt Shapers and Gear Cutters
Cincinnati Bickford Upright and Radial Drills

E. O. Partridge Emery Grinders
Armstrong-Blum (Marvel Power Hack Saws)
Greenerd Arbor Presses

Bullard Boring Mills and Vertical Turret Lathes
Williams-White Punches and Shears
Stoever Pipe Cutting Machines
Baker Bros. Drills and Key-seaters

WHITING FOUNDRY EQUIPMENT COMPANY

Mechanical Rubber Co.
McCaffrey File Co.
Imperial Brass Mfg. Co. (Welding Outfits)
National Steam Pump Co.
Bailey-Burruss Mfg. Co.
Stover Mfg. & Engine Co. (Gas Engines)
Homestead Valve Mfg. Company

SEEGER-WALRAVEN COMPANY

Machine Tools---Mill Supplies---Foundry Equipment

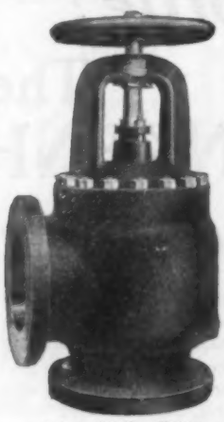
38 West Alabama Street Atlanta, Georgia

"Quality is Economy"

FOSTER VALVES

Reliability Their Main Feature

Every Foster Automatic Non-Return Stop Valve Brings Sure Protection



Automatic Non-Return Stop Valve.

The plant where it is installed is safe when a boiler tube bursts for the disabled boiler is immediately cut out from the rest of the battery.

The men making boiler repairs are safe for steam cannot enter a cold boiler, nor can it enter a boiler in which steam is being raised, as long as Foster Automatic Non-Return Stop Valve is on duty.

The material and workmanship that go into these valves, being the best obtainable, give permanent reliability and long life.

Valve is thoroughly cushioned, valve seats are renewable and specially constructed to eliminate leakage—made in globe or angle bodies of cast steel and semi-steel.

Write today for complete description of this or any other Foster Steam Specialties for the control and regulation of steam, water, gas or air pressure.

Foster Engineering Co.

Newark, N. J.

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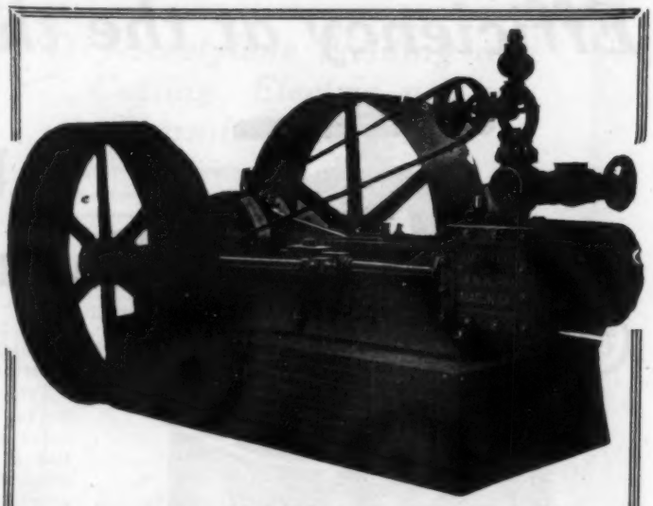
161 Summer St.,	Boston, Mass.
712 Harrison Bldg.,	Philadelphia, Pa.
404 Arrott Bldg.,	Pittsburgh, Pa.



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Macon, Georgia

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Safety Pins, assorted sizes,
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1 Medicine Glass, graduated,
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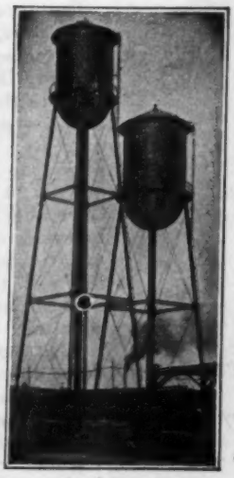

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Jewelers Building, 373 Washington St., Room 38, BOSTON, MASS.
103 State St., Room 805, CHICAGO, ILL.

"Be Prepared for Fire"

Says the foresighted mill owner

A certain mill owner once said: "When it comes to fire, I believe in preparedness. I carry fire insurance, to be sure, but no insurance settlement would cover my loss if my mill were to burn down. An ounce of prevention is worth a pound of cure any time, and that's why I insist that my mill be equipped with fire extinguishers—that will kill a good-sized fire before it can roar into a conflagration."

Are you prepared for fire in your mill? Remember that it always starts unexpectedly with a small blaze, and if you do not have a good extinguisher like the ACME at hand, it will doubtless consume your whole plant, as a cotton fire is one of the hardest of all fires to control. But the ACME will stop it dead before it gains headway.

Equip now with ACMES. It will not only banish the dread of fire, but your insurance company will lower your premiums if you install them.

ACME Fire Extinguishers are examined, tested and labeled under the direction of the Underwriters' Laboratories, Inc.

Ask today for prices on an installation in your mill.

MISSOURI LAMP & MFG. CO.
ST. LOUIS, MO.

Acme Fire Extinguishers

A BIG FACTOR IN MILL CLEANLINESS

Sanitary Washbowls have become necessities in the promotion of proper working conditions for employees, wherever factory cleanliness is considered worth having. Manufacturers no longer wonder if they can afford them. Instead, they realize that doing without them is the true cause of expense. Consequently the recognized standards in scores of mills today are

MEECO SANITARY WASHBOWLS

They should be the same in yours, because the same careful workmanship and the same simple, practical design which has proven so satisfactory for others will prove equally so for you.

Meeco Washbowls come in batteries, consisting of any number you may require. The variety of ways in which they may be installed always makes possible the greatest conservation of space without a sacrifice in convenience. They are finished in baked brown enamel with nickel-plated fittings and white enamel bowls. Thoroughly built and handsome in appearance.

Write For Catalog showing our full line of Sanitary Wash Bowls, Bubbling Fountains, Metal Lockers, All Steel Stools and Chairs and Inset Wood Seats, Stock and Storage Racks, Metal Shelving, Metal Vault Fixtures, Improved Soda Kettles (40 to 60-Gallon), Water Heaters and Instantaneous Mixers, Work Benches and Bench Legs, Drawing Stands, full line of Plumbing Fixtures, etc.

Manufacturing Equipment & Engineering Co.
136 Federal St, Boston, Mass.
Address all communications to Framingham, Mass.

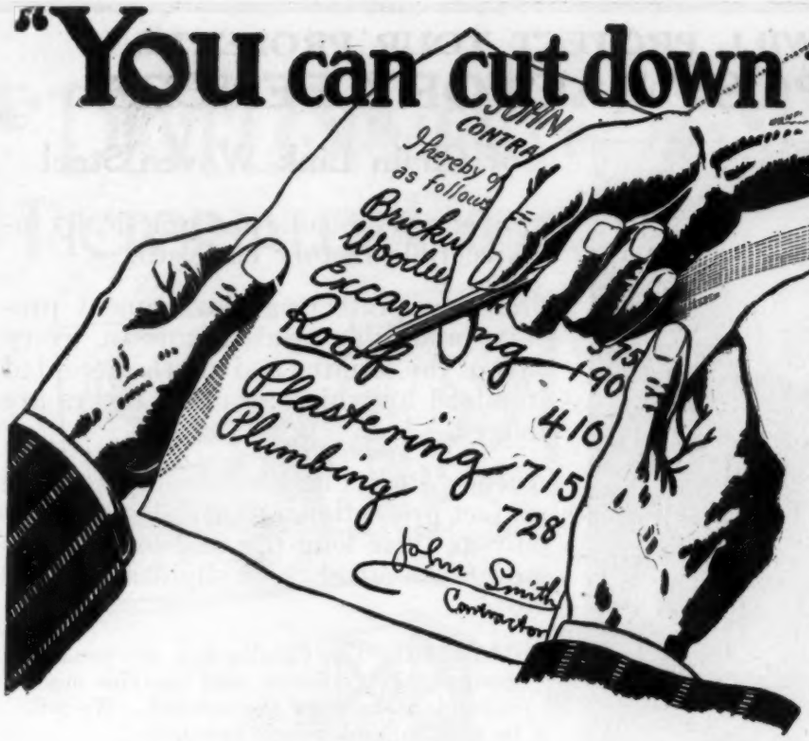
How Do You Deliver Drinks?

The accessibility of clear, cold drinking water and the way it is supplied to the workmen is a matter of extreme importance to every manufacturer. Consequently, hundreds of plants are today equipped with the most modern and economical solution to the problem. If doing this had not proved profitable, these concerns would again be using old cup and hydrant methods. But they are not. Many are placing further orders. They have learned the practical results produced by

R. & S. FOUNTAINS

Write for Catalog.
RUNDLE-SPENCE MFG. COMPANY
Milwaukee, Wis.

"You can cut down that item and have a better roof"



There is no use in putting on an expensive roof when you can get a better roof and save real money by getting

Certain-teed Roofing

CERTAIN-TEED is the best roof, not only because it costs less to manufacture, but also because it is light-weight, weather-tight, clean, sanitary, fire-retardant and costs practically nothing to maintain.

It is now used as the preferable type of roof for textile mills, power plants, warehouses, cottages and all out buildings, etc., where durability is demanded. CERTAIN-TEED is guaranteed for 5, 10 or 15 years, according to thickness (1, 2 or 3 ply).

While there are many roll roofings on the market, there is only **one** CERTAIN-TEED. It pays to get the best. It costs no more to lay a CERTAIN-TEED roof than it does to lay a poor roof, yet there is a vast difference in the wear. You can't tell the quality of a roofing by looks or feel. Your only safety is the label. Be sure that it is CERTAIN-TEED—then you are **certain** of quality and **guaranteed** satisfaction.

The rolls are 32" wide containing 108 sq. ft. Nails, cement for laps and directions for laying included. Made in 3 thicknesses.

CERTAIN-TEED PRODUCTS CORPORATION

New York, Chicago, Philadelphia, St. Louis, Boston, Cleveland, Pittsburgh, Detroit, Buffalo, San Francisco, Milwaukee, Cincinnati, New Orleans, Los Angeles, Minneapolis, Kansas City, Seattle, Indianapolis, Atlanta, Memphis, Richmond, Grand Rapids, Nashville, Salt Lake City, Des Moines, Houston, Duluth, London, Sydney, Havana

CERTAIN-TEED
Slate Surfaced Asphalt Shingles

are supplying wood and slate shingles for residences churches, and similar buildings in mill villages. They cost less, are just as good looking, wear better, won't fall off, crack, or buckle. They are fire retardant, and need no painting or staining.

Put up in wooden crates, each containing 212 shingles. Two crates cover 100 sq. ft., gross weight 240 lbs. Each shingle measures 8" x 12¾" and should be laid 4" to the weather.

CERTAIN-TEED
Paints—Varnishes

We are prepared to meet specifications required for all kinds of paints and varnishes in mill districts. Items of special interest include Mill White, Floor Varnish, House Paints and Metal Paints.

THIS FENCE WILL PROTECT YOUR PROPERTY

ANCHOR POST FACTORY FENCES

of Chain Link Woven Steel

form an unclimbable and practically indestructible factory enclosure.

They are protecting Government property and Industrial Plants in every part of the country and are the accepted standard by which all other fences are judged.

Anchor Post Fences not only provide perfect protection, but are also an economy as their long life and low upkeep more than offset their slight additional cost.

CATALOG. Our Catalog is a text book on modern factory fences, and contains much valuable data upon the subject. We will be glad to send a copy promptly .

ANCHOR POST IRON WORKS, 11 Cortlandt St., So., 13th Floor NEW YORK

Philadelphia Cleveland Boston Hartford Newark

2175-G

MISSISSIPPI WIRE GLASS

Postex Cotton Mill, Post, Texas

is installed for Fire and Breakage Protection, Light Diffusion and Minimizing Cost of Maintenance.

Let us mail you samples and literature which will give valuable information.

MISSISSIPPI WIRE GLASS CO.

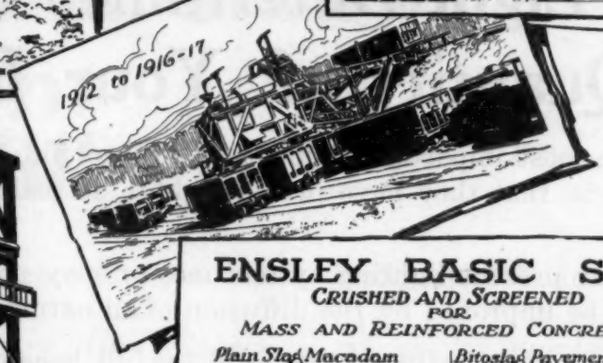
217 5th Ave.

NEW YORK.

7 W. Madison St., Chicago, Ill.

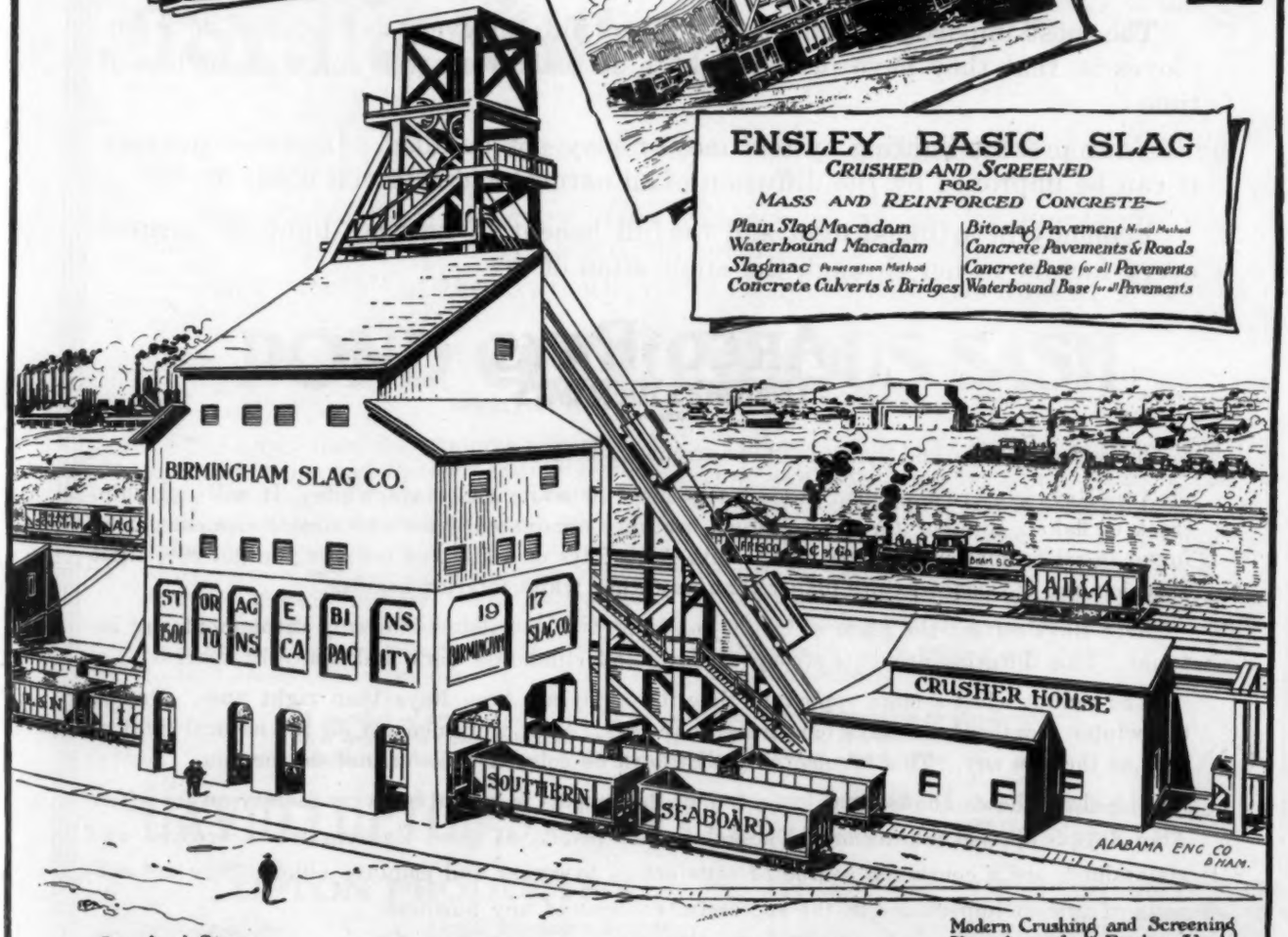
4070 N. Main St., St. Louis, Mo.

The DEVELOPMENT of the SLAG INDUSTRY PICTORIALLY EXPRESSED



ENSLEY BASIC SLAG
CRUSHED AND SCREENED FOR MASS AND REINFORCED CONCRETE—

Plain Slag Macadam	Bitoslag Pavement N. and Method
Waterbound Macadam	Concrete Pavements & Roads
Slagmac Penetration Method	Concrete Base for all Pavements
Concrete Culverts & Bridges	Waterbound Base for all Pavements



Standard Sizes

No. O—Crusher Run

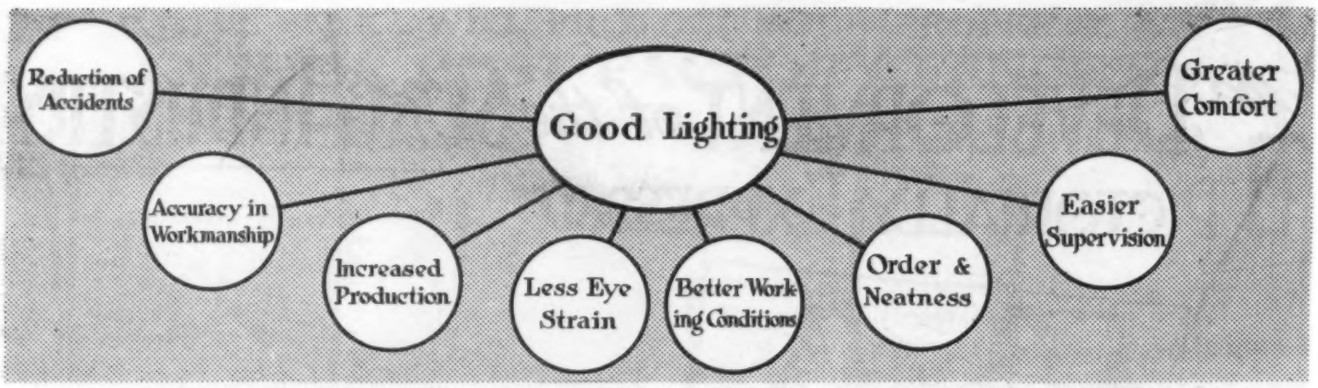
No. 1—4 to 2½ Inches	No. 4A—1½ to ½ Inches
No. 2—2½ to 1½ "	No. 5—¾ to O "
No. 3—1½ to ¾ "	No. 6—½ to ¼ "
No. 4—¾ to ¼ "	No. 7—¼ to O "

No. OO—Shovel or Bank Run

BIRMINGHAM SLAG COMPANY
GENERAL OFFICES
1607-1616 JEFFERSON COUNTY BANK BUILDING
BIRMINGHAM, ALA.

BRANCH OFFICE
EMPIRE BUILDING, ATLANTA, GA.

Modern Crushing and Screening Plant, located at Ensley, Ala.
Will be completed about Nov. 15th 17.
CAPACITY 4000 TONS PER TEN HOUR DAY.
— SHIPPING FACILITIES —
CARS WEIGHED at OUR PLANT by S.W.& I. BUREAU and DELIVERED by OUR LOCOMOTIVES to the A.B.& A., A.G.S., L.& N., I.C. & C. & G., FRISCO, Pharr, Southern, SOUTHERN and SEABOARD RAIL ROADS INSURES PROMPT DELIVERY.



Light Determines the Quality and Quantity of Your Employes' Work

The most important element that enters into the every day work of your employes is, that they have proper light to do their work well and without loss of time.

Your present lighting system may or may not be good. In either instance it can be improved by the diffusion of all natural and artificial light.

Economy in artificial light and the full benefit of natural light is assured every factory owner through the application of

ARCO-RAYS
"LENGTHENS YOUR DAYS"
TRADE MARK

to the walls, ceilings and columns of workroom interiors.

Arco Rays is a brush applied product that goes on white and stays white. It will not chip, crack or flake. In laboratory and factory, we have eliminated these undesirable elements to be found in all ordinary white coatings. With Arco Rays on walls and ceilings you get 80% light diffusion and it remains white longer than any other white interior coating.

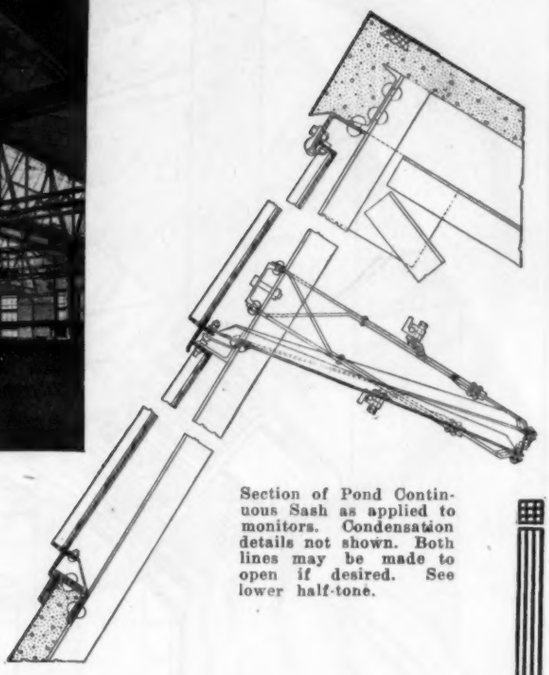
Arco Rays softens the glare of bright sun light and distributes it evenly throughout any interior. This diffusion prevents strong shadows and eliminates dark and dimly lit spaces.

You cannot select a more opportune time for applying Arco Rays than **right now**. During the winter months Arco Rays lengthens your days. Your workmen get all the natural light as long as there is any. This is something that dark or colored walls cannot do for you.

The chart shown above gives but a few of the benefits to be had by every factory owner where Arco Rays is applied to interiors. These desirable results of good lighting when secured and maintained, are a continued source of satisfaction to owner and employe alike. They are subjects of utmost importance in the successful conduct of any business.

Write today for our book "Factory Lighting and Its Relation to Factory Efficiency". It contains information that is a guide to better light and better work through the use of Arco Rays the white coating of 80% light diffusing power.

THE ARCO COMPANY
11910 Wise Building, Cleveland, Ohio
Makers of High Grade Paints, Varnishes and Enamels
Established 1880



Section of Pond Continuous Sash as applied to monitors. Condensation details not shown. Both lines may be made to open if desired. See lower half-tone.

A Daylight Textile Mill

It's hard to get too much light in a textile mill; most wide building haven't nearly enough.

The Philadelphia Tapestry Mills building above shown represents the best modern practice where a strictly north light is desired.

Each "tooth" of the sawtooth roof is equipped with two lines of

POND CONTINUOUS SASH

WEATHER-PROOF WHEN OPEN

The upper lines are top-hung and opened by hand chains and Pond Operating Device. They are designed to be weather proof when wide open; an overhanging angle prevents rain from entering at the top; stationary storm panels protect the ends; the various sections of each line are joined by weather proof expansion caps. On account of humidors being used, the weathering is arranged to lead condensation outside.

Pond Continuous Sash is recommended for sawtooths, monitors and side walls wherever ample light and ventilation are desired regardless of weather. It is strongly made of extra-heavy rolled steel sections, permanently oxy-acetylene welded at all joints, and is so hung as to protect the glass from strain. It is readily controlled by hand or by electric motors.

A number of modern mills and factories, where special attention to daylighting and ventilation has produced unusual operating results, are described in a new booklet, "Air, Light, and Efficiency." Shall we send you a copy?

DAVID LUPTON'S SONS COMPANY, Amber St. & Allegheny Ave. Philadelphia, Pa.

LUPTON PRODUCTS

Lupton Steel Sash
- Pivoted Factory Type
- Counterbalanced Type for factories
- Counterweighted Type for offices.
- Power House Type

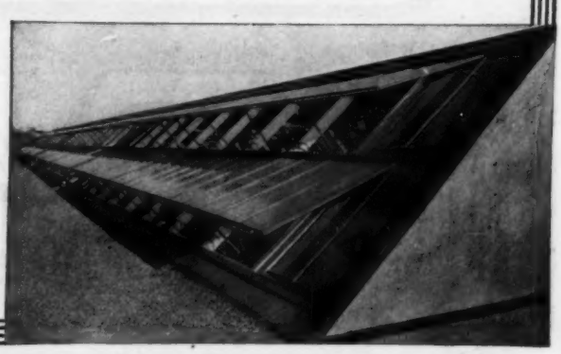
Lupton Steel Partition and Doors

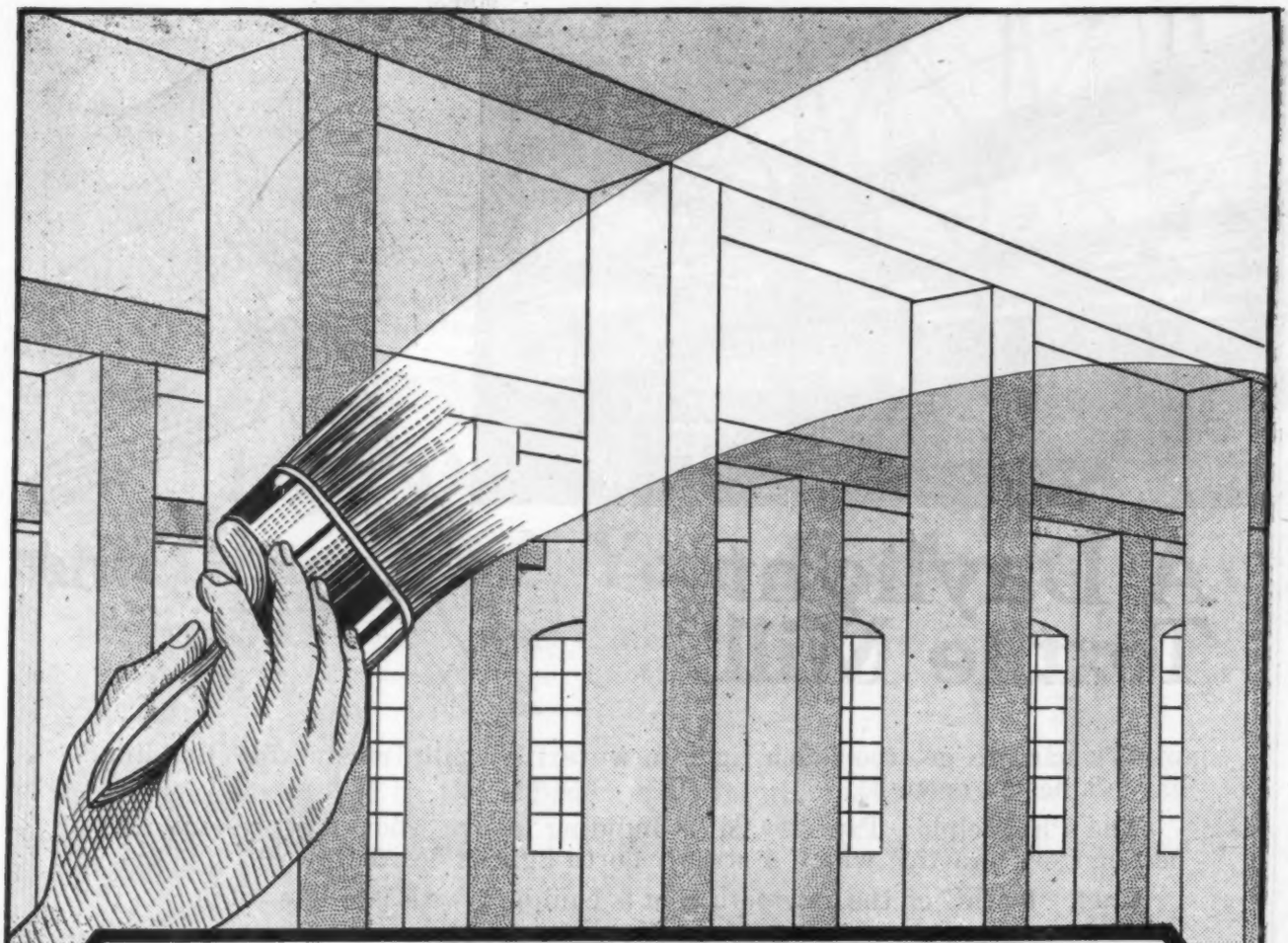
Pond Continuous Sash for Pond Truss, sawtooths, monitors and side walls

Pond Operating Device for long lines of sash

Lupton Rolled Steel Skylight

Lupton Steel Shelving





The Problem of Shorter Days

Approaching winter brings with it the season of short days. What provision have **you** made to offset the loss of daylight in your mill.

The usual custom, and the most expensive, is the use of artificial light.

Many mills, however, are adopting the daylight-saving plan. They find it costs less to **brighten** up than to **light** up.

GF No. 525 Factory Enamel applied to your walls and ceilings will make them pure white. By reflecting the natural daylight Factory Enamel soon pays for itself in decreased lighting bills.

And that isn't all—your employees can do better work with natural light. Eye strain is lessened, accidents avoided and production speeded.

Unless your rooms are bright and cheerful, you owe it to yourself and your workmen to find out more about Factory Enamel. It costs no more than "mill whites."

Stock Carried Locally for Immediate Shipment.
Descriptive Booklet on Request.

THE SOUTHERN G-F COMPANY

"At Your Service"

ATLANTA

GF FACTORY ENAMEL

"As perfect to day as when first put on the walls of our spinning room two and one half years ago and only one coat was used—

—Writes Mr. Beacham, Supt. of Chiquola Mfg. Co. regarding the merits of

Pee Gee FACTRILITE LIQUID DAYLIGHT

For Interior Walls and Ceilings

The splendid results obtained by the Chiquola Mfg. Co., Honea Path, S. C., with *Pee Gee Factrilite* have been repeated over and over in scores of mills throughout the South. It will save you the expense and annoyance of frequent repainting caused by inferior Mill Whites. *Pee Gee Factrilite*

Stays White for Years

It is made by our own perfected process of especially prepared white pigments and long oil, therefore it will not turn yellow like ordinary paints which contain lead and varnish. It is very economical, because it is **Washable, Durable, Germ and Moisture Proof,** does not crack and withstands the vibration of heavy machinery. It has a high-gloss, tile-like finish of highest reflective power, thereby increasing the hours of daylight.

Write today for Sample Board painted with Pee Gee Factrilite.

Peaslee-Gaulbert Company

Incorporated

Established 1867. **Paint Grinders, Varnish Makers.** **Louisville, Ky**

Their big plant is flooded with daylight, their lighting bills are reduced, their working people encouraged to greater cleanliness and they can do more and better work.

Steam and water can't hurt or darken these walls.

UPCO Porcelain Enamel and Pastello Flat White reflects all the light in every corner. It will retain its high glossy, tile-like white finish, no matter how often washed, and will positively stay white longer than any other white made.

Many tests have shown that UPCO Porcelain and Pastello Flat White applied alongside any other mill white, proves its superiority, now and years later.

Accept no substitute. See that you get UPCO QUALITY.

Write for our valuable book "Light Without Power." A post card will do.

The Ullman-Philpott Co.

Industrial Paint and Varnish Laboratories

Cleveland, Ohio

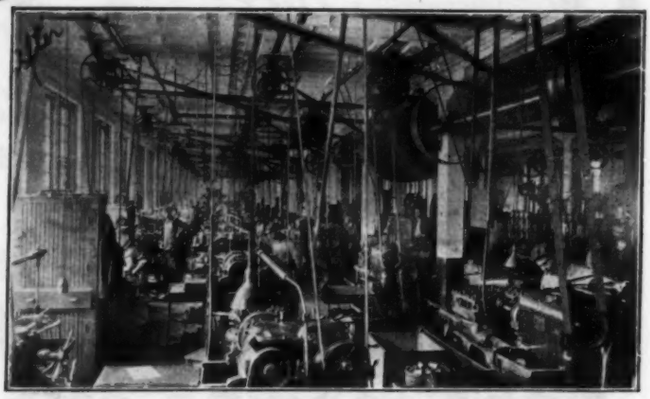
At The Robbins & Myers Plant

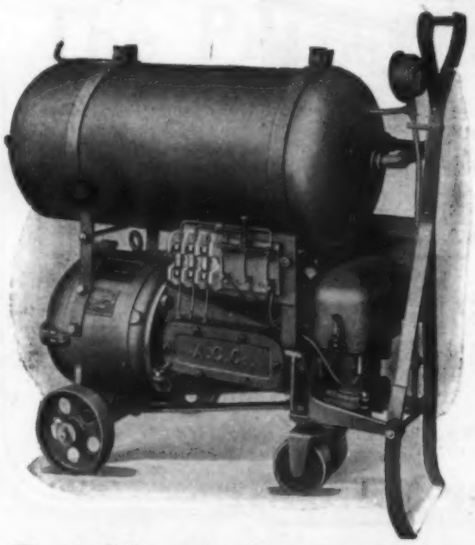
At the big plant of the Robbins & Myers Company, the well known manufacturers of electric motors, fans, etc., they thoroughly tested out seven standard brands of mill white so they might be sure they were getting the best.

Labels from the seven different cans were removed, and the cans numbered. Mr. Myers chose by results—and UPCO PORCELAIN ENAMEL and PASTELLO FLAT WHITE was selected as the best and 100 barrels of it ordered.

This is mighty conclusive proof that UPCO QUALITY is the best mill white to be had.

Upco QUALITY





Portable Air Compressors

A Necessity for Cleaning Electrical Machinery in the Power House, Factory or Mill.

For Direct or Alternating Current.

Type AC-3. Equipments—Capacity, 16 cu. ft. Piston Displacement.

Allis-Chalmers Manufacturing Company

Milwaukee, Wisconsin

Canadian Representatives: Canadian Allis-Chalmers, Ltd. Toronto, Ont.

Where Quality Counts

High class electrical equipment is of paramount importance in the efficient and continuous operation of your mills. Reducing the quality to get a cheaper installation, is as unwise as cutting down the size of timbers and walls to construct a cheaper building.

You cannot afford to experiment along these lines. Better consult experts—call on us.

Walker Electric & Plumbing Company

Plumbing, Heating and Electrical Contractors,

ATLANTA, ROME and COLUMBUS, GA.

Industrial Work a Specialty.

Best Grade Renewed Lamps

Both Carbon and Tungsten Types

We guarantee you most for the money

BOSTON ECONOMY LAMP DIVISION

National Lamp Works of General Electric Company

Maple St. DANVERS, MASS.

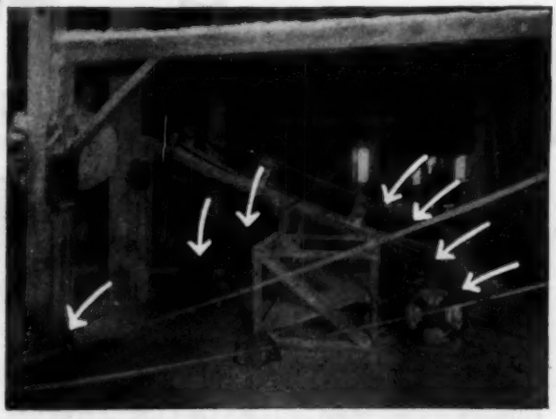
LINCOLN MOTORS

Continuous Service

For ten years these Lincoln Motors have been giving continuous, reliable service under the worst conditions.

They are part of a large installation in a salt works and the wet salt has caked into the windings until they are hardly visible.

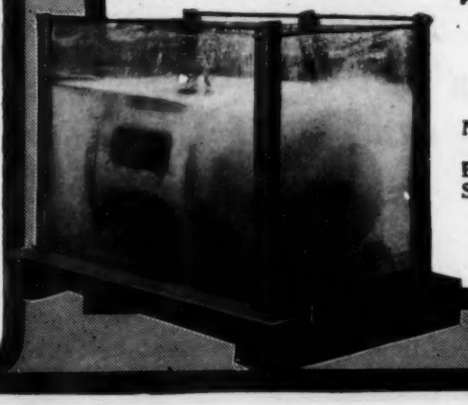
Still there has been no shutdown for motor trouble during the entire ten years.



Lincoln Motors in plant of the Cleveland Salt Works.

Ask for Bulletin on Motors 101-N

This standard Lincoln Motor has operated under water for three years without damage to windings.



"Link Up with Lincoln"

The Lincoln Electric Company

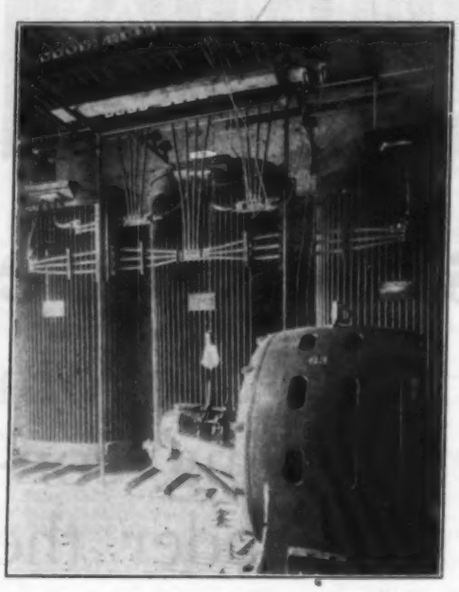
Cleveland, O. **Charlotte, N. C.**

New York City (Singer Bldg.)
Buffalo
Syracuse
Chicago
Columbus
Detroit
Boston
Philadelphia
Pittsburgh
Toronto, Canada

Agencies in other principal cities

Without Stopping the Mill Machinery

The Muscogee Mfg. Co.'s New 11,000 Volt Substation Was Installed

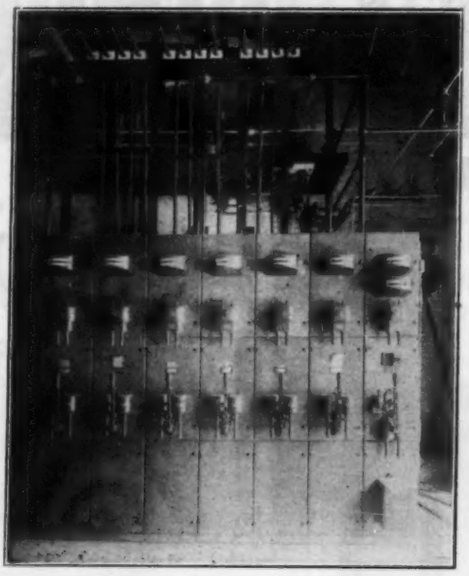


We were awarded the contract to take out the old low-voltage substation at the Muscogee Mfg. Co., Columbus, Ga., and install the new 11,000 volt substation.

All work was done by us in record time, and the machinery of the mill was not stopped one minute.

Another recognition of our reputation for quick service and quality work is shown by the fact that Uncle Sam has awarded us electrical contracts at both Camp Gordon and Camp McClelland.

We specialize in Textile Mill and Village electrical installations of all kinds, and are glad to furnish estimates on request. May we serve you?



T. H. McKINNEY INC.

CONTRACTING ELECTRICAL ENGINEERS, ATLANTA, GA.

The Heart of an

ECONOMY

renewable cartridge

FUSE

is the "Drop Out" Renewal Link. It is the only thing you have to replace in order to renew a blown ECONOMY FUSE. The expense is trifling, compared to the utter extravagance of discarding an entire fuse after it has operated.

Use Economy Fuses in your plant and by their use cut yearly fuse maintenance bills a full 80 per cent.

Write for free Samples. Test them. Let the results speak for the economy and safety of Economy Fuses. Be sure to ask for Catalog 39.

Economy Fuse & Mfg. Co.
Kinzie and Orleans Sts.,
CHICAGO.
At Leading Jobbers.

ADVERTISING

is a bond of fair dealing, for only a promise performed can justify the cost of a promise printed

Electrical Supplies

The globe which hovers over the lamp—the lamp itself, the connections, the cord—the everything, in fact that belongs in the line of electrical supplies and equipment, is here stocked ready for instant shipment wherever and whenever you give the word "go."

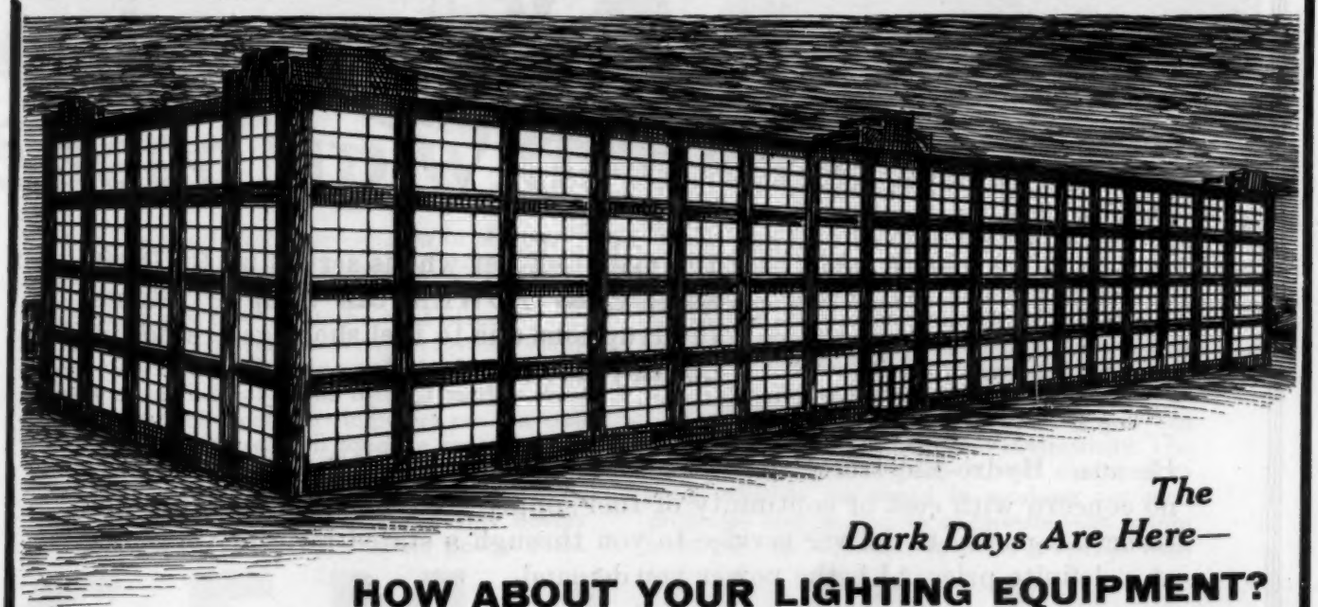
Aside from being able to reach you quicker, perhaps, than dealers in other parts of the country, we have in our warerooms all the necessities one sometimes requires on the shortest possible notice.

If you do not have our 800 page catalogue in your files for ready reference you should ask that one be sent you, for in addition to naming prices it illustrates hundreds of electrical parts and equipment.

A wire or long distance call is the cue for our force to lay aside everything until your order has been dispatched.

We call this "service."

CARTER ELEC. CO.
72 N. BROAD ST.
Atlanta, Ga.



The Dark Days Are Here—

HOW ABOUT YOUR LIGHTING EQUIPMENT?

Fulton Bag & Cotton Mills, Atlanta, Ga.
Exposition Cotton Mills, Atlanta, Ga.
Whittier Mills, Chattahoochee, Ga.
Bibb Mfg. Co., Macon, Ga.
Bibb Mfg. Co., Columbus, Ga.
Bibb Mfg. Co., Porterdale, Ga.
Russell Mfg. Co., Alexander City, Ala.
Aldora Cotton Mills, Barnesville, Ga.
Texas Cotton Mills, McKinney, Texas.
Hampton Cotton Mills, Hampton, Ga.
Mandeville Cotton Mills, Carrollton, Ga.
Kincaid Mfg. Co., Griffin, Ga.
Ensign Cotton Mills, Forsyth, Ga.
Thomaston Cotton Mills, Thomaston, Ga.

The correct and efficient wiring and lighting of mills and mill villages is our specialty.

The question of lighting and the installation of electrical equipment is too important an item to leave to just any electrical contractor. Our work is known all over the South and approved and recommended by such big mills as those listed to the left.

You can depend on us for quick service—and you can also depend on us for the most efficient and correct installation of all wiring, lights, motors or any electrical equipment.

We will gladly furnish estimates on any electrical work in the mill or mill village, large or small. Get in touch with us before placing your contract.

J. M. Clayton, Electrical Contractor
ATLANTA, GA.

Don't Worry About Coal

when you can get

Hydro-Electric Power

caught at the waterfall and delivered to you on a wire.

We supply the raw product all manufacturers consider first—the thing they are interested in primarily—

RELIABLE MOTIVE POWER

in the form of Hydro-Electric Power, transmitted to the doors of the factory.

The manufacturer who lacks it in time of stress sees his coal pile dwindle and doesn't know where another pound's to come from—

The manufacturer who is served by HYDRO-ELECTRIC POWER can sleep o' nights. Interruptions due to fuel shortage are not included in his calculations.

Because Hydro-Electric Power consumes no fuel, you, it's employer, have no concern with cost or continuity of fuel supply. We bind our facilities and reserve capacity to deliver service to you through a stated term of years and at a definite price ALL the power you demand.

GEORGIA RAILWAY & POWER CO.

Sales Dept. **Atlanta**

Speed up with Electric Power

75% of all electric power used in the textile mills of this country passes through G-E Motors

HERE are some of the ways in which modern industry has been speeded up by putting electric power to work in the right place.

Metal mines have boosted output to meet world-wide demands. Great central power plants in place of small local plants in coal mining areas now supply cheaper electric power per ton output for each mine. All tonnage records have been smashed in the steel industry. Greater automobile output has lowered prices and given better road transportation. More and better cloth has been produced at lower power costs.

The engineering problems solved in putting electric power to work in these and other industries were many and intricate. Production of electrical equipment suited to this work and in quantities required is an important part of this company's service to American industries.

Any problem involving the use of power can be simplified by the application of electricity. The General Electric Company is well equipped to lend valuable assistance in working out such problems and is glad to co-operate with manufacturers and engineers in every possible way.

G-E Motor Drive

GENERAL ELECTRIC COMPANY

General Office, Schenectady N.Y. Mill Power Dept. Boston, Mass.

7174

FELCO

Quality Brushes

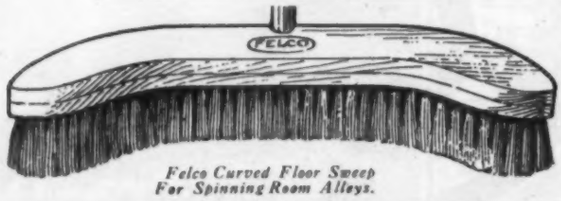
MILLS that recognize quality in brushes—brushes that are made from the best materials and by the most expert workmen—brushes that are made to stand the use and abuse of long and severe service—are demanding Felton Mill Brushes.

There's a Felton Brush for every use in the mill at the lowest price consistent with the high standard of quality.

We have a special department for brush repair work, and your broken or worn out brushes will be repaired carefully and promptly.

S. A. FELTON & SON CO.
Manchester, N. H.

D. D. FELTON BRUSH CO.
Atlanta, Ga.



Felco Curved Floor Sweep
For Spinning Room Alleys.

DUCK
SHUTTLES

PROMPT
DELIVERY

SHAMBOW SHUTTLE
COMPANY
WOONSOCKET, R. I.

P. B. McMANUS, Pres. and Treas. EDWARD J. McCAUGHEY, Vice-Pres. and Mgr.

Home Bleach & Dye Works, Inc.

Established 1881.

Dyers, Bleachers and Mercerizers of
Cotton Yarns—in Skein and Warp

Daily Capacity 50,000 Lbs.

Facilities for Winding Cotton Yarns on Paper Cop Tubes for the Shuttle, also on Beams, Cones, Parallel Tubes and Jack Spools.

Office and Works at Pawtucket R. I.

OCT 15 1917
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COTTON

Published Monthly by

W. R. C. Smith Publishing Co., Dalton and Atlanta, Ga.

L. L. ARNOLD, Editor.

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Orders for any change in advertising must reach Atlanta previous to the tenth of the month preceding month of issue, otherwise publishers cannot be responsible for changes.

When changing address, *notify us*, not the postmaster. Always give the old address as well as the new one.

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Volume 81. **Member Audit Bureau of Circulation.** **Number 12**

This Issue 5200 Copies.

HOW ADVERTISING SAVES AND PROTECTS THE BUYING PUBLIC.

Does the average person ever stop to think what a safe and easy thing buying has become in our day? What a contrast to the way it used to be within the memory of most of us?

This applies to all buying—of necessities, of luxuries, of everything.

John Sullivan, Secretary of the Association of National Advertisers, in a recent interview said some things on this subject which should interest every buyer in the world. For his words apply to the purchase of anything, from a 5 cent cake of soap to the most expensive advertised article.

"Today," said Mr. Sullivan, "the housewife sends her little child to make purchases at the corner grocery. She sends her with perfect confidence that, even though a child, she cannot err therein. All that the child needs is explicit instructions to buy THIS or THAT. In the case of all staple produce the price is known. There is practically nothing about the goods that is unknown. And to be sure of getting exactly what you want, it is only necessary to name the goods.

"It is the same in other stores of nearly every kind.

"What a contrast to the days of our fathers, when practically all buying was a hazard—impossible for the child and risky for the parents!

"In those so-called 'good old days,' soap was just soap, prunes were just prunes, coffee was coffee—and so on through the long list of things that are used in every home.

"In no case was there any guarantee of quality, or any sure way to identify goods that might have proved satisfactory so that the same goods could be bought again. The whole buying game was just a game—a game and a gamble; with all the odds against the buyer.

"Then gradually, step by step, came the great change. The Trademark began to appear—a positive means of identifying goods. And with the trademark came ADVERTISING on a national scale—the best, the surest, the cheapest, the only efficient way of making the merits of these goods known to buyers everywhere.

"Trademarked merchandise was soon found to be good merchandise—worthy of every buyer's confidence.

"In fact trademarked articles have got to be good. The trademark identifies them, advertising proclaims them, and use by thousands and millions make their qualities positively known. Only first class merchandise can dare to court such a test. A well-known trademark is an asset of priceless value for a good article, but it would be sure death for a poor one, for in that case it would be not a guarantee but a WARNING to the buyer. It would help him to identify the bad as well as the good; to avoid the one and choose the other.

"The greatest achievement of modern advertising is that for the first time in the history of the world's merchandising it protects the buyer; it makes buying both easy and safe. The value of every trademark depends on the good will of the buyer, therefore this trademark, which positively identifies the goods, for better or for worse, is the buyer's sure and certain guarantee."

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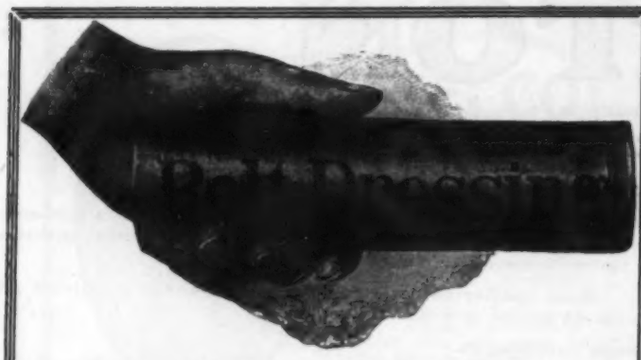


The Perfect Belt Dressing is

DIXON'S

Solid Belt Dressing

Put up in handy sticks and applied while the belt is in motion.

By using it every ounce of "pull" in a belt is quickly made available. Yet the composition of this dressing is such that it will not crack or harden the belts.

Send to Dept. 34-O for a free sample now.

Made in Jersey City, N. J. by the

JOSEPH DIXON CRUCIBLE CO.

Established 1827

DRAWINGS OF YOUR PLANT

This is a Photo of Our Drawing of the Springstein Mills, Chester, S.C.

WE CAN MAKE A PICTURE LIKE THIS FROM THE ARCHITECTS BLUE PRINTS BEFORE PLANT IS ERECTED

RUDOLPH J. SHUTTING CO. CHATTANOOGA TENN.

SUCCESSFUL SOUTHERN BOBBIN MAKERS

JORDAN MFG. CO., Monticello, Ga.

Hardinge "Alert"
Portable Watchman's Clocks

3	station	systems	complete	$38.75
6	"	"	"	42.50
9	"	"	"	46.25
12	"	"	"	50.00
16	"	"	"	55.00
24	"	"	"	65.00
32	"	"	"	75.00

Labeled by National Board of Fire Underwriters and approved by Factory Mutuals: Keys do not wear out: Guaranteed unreservedly: Shipped on approval: Prompt shipment: Service that *is* Service.

HARDINGE BROS., Inc. Established 1890

First and oldest Mfrs. of portable watch clocks in America

1764 Berteau Ave. Chicago.

GARLAND

WHY NOT BUY LOOM HARNESSES

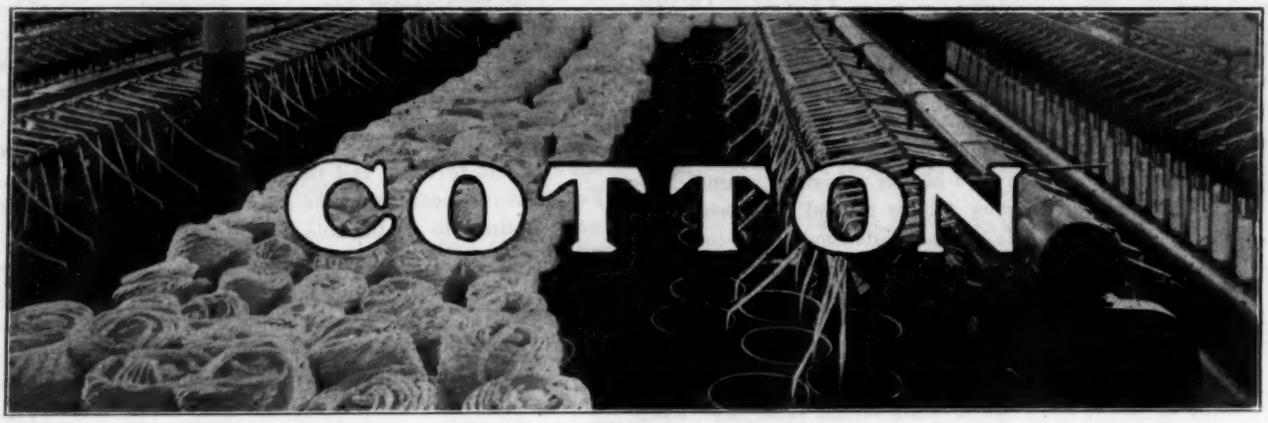
That always weave and wear the best

No loom harnesses are made with greater care or subjected to a more rigid inspection in the various processes of their manufacture than the harnesses which we are turning out, and it is because of this care and this inspection that our harnesses are always of uniform quality.

G TRADE MARK

GARLAND MFG. CO.

SACO, MAINE



October, Nineteen-Seventeen.

You Know Yourself.

Elihu Burritt, who became a very learned man, after working as a blacksmith almost up to middle age, said:

"All that I have accomplished, or expect or hope to accomplish, has been and will be by that plodding, patient, persevering process of accretion which builds the ant-heap —particle by particle, thought by thought, fact by fact."

Sir Thomas Buxton, another great man, said:

"The longer I live, the more certain I am that the great difference in men, that is between the great and insignificant, is energy, invincible determination, an honest purpose and then death or victory. This quality will do anything in the world, and no talents, no circumstances, will make a two-legged creature a man without it."

Search all the history you please for reasons for the success of great men and you will find they are all possessed of that one main thought—"Beat the other fellow"!

Too many of us make up our minds we are going to study our work more closely, try to become experts in our chosen profession and then, after a few weeks, sometimes only days of study, we give up because it is hard, because we haven't the time, because we are too old, or for some other poor excuse. The truth is we are sorely in need of some of the qualities mentioned by Buxton and Burritt.

We must make sacrifices today in order to have pleasures tomorrow.

Wisdom will certainly not open her doors to any man who is not willing to pay the price in self sacrifice, hard work. When you become discouraged in your efforts to learn, if you experience a feeling of disappointment as to the results of your study, should you not ask yourself whether you may not be lacking in some of these necessary characteristics? And should you find, as you most likely will, that you are deficient in one or more of these qualities, it is your duty to yourself and to your family to find a remedy for your shortcomings, to cure yourself of your weakness. If you will, the whole world will begin to look different to you and success will come to all your efforts.

You know yourself better than any one else knows you. You know where your weak points are; to make yourself stronger you must go to work to strengthen these weak points.

Almost every man has some locked-up forces that are trying their best to break out and make a man of him.

It is within every person's power to call out these hidden forces, to be somebody and do something worth while in the world.

Don't be afraid to trust yourself. Have the faith in your own ability to think along original lines. For goodness sake don't follow—lead.

How To Keep Germs Out of a Cut.

Valuable information on the care of a deep cut is given by Charles Phelps Cushing in an article on first aid in The Red Cross Magazine.

"If the wound is touched by the hand billions of pus germs will be carried into it. If washed with water even more germs will be carried into the wound and not only that, but the deep parts of the wound which previously no germs had reached will have billions of germs carried to them. Therefore do not handle or wash a wound. Even if an antiseptic solution is used, it will carry pus germs from the skin and deeper than they have been before and no antiseptic such as bichloride of mercury can be used strong enough to kill these germs, as it will also destroy the cells of the body and so make them less able to fight the germs. Peroxide is specially dangerous in deep wounds as it carries pus germs everywhere and is not strong enough to destroy them. Placing a clean dressing, which means a dressing that has been sterilized surgically on the wound will introduce no more germs and will not injure the delicate tissues of the body, exposed in the wound. Moveover, the flow of blood and blood serum (the liquid part of the blood) will be in the direction of the dressing, so the germs will be constantly going out. *This, therefore, is the way to take care of a wound.*"

Our surgeon cautions that all this is to be taken in the most literal sense. If you cut your finger don't put the wound to your lips, for your mouth contains dangerous germs. So does the water in the wash basin. The thing to do is to make the finger bleed a little by pressure; then to bandage it and let it alone. As for plaster, the textbook, you will observe, condemns its use for anything but trivial scrapes "for not only does plaster seal the wound

so that any germs within would be in most favorable position to increase in number but is itself likely to be covered with pus germs."

Our expert advises: "Instead of wasting your money on disinfectants and patent washes and the like, you will do far better to buy a first aid packet which contains surgically clean gauze for wound dressing and bandaging.

"I own, personally, to a strong prejudice against having bichloride of mercury tablets around the house," the surgeon told me, a little later. Diluted iodine, he contends, is quite as efficacious an antiseptic as these "deadly poisonous tablets which are so often being mistaken for something else." He has managed, both in his home and in his operating room, to get along without them for more than ten years. The iodine, if it is diluted with alcohol to the color of straw, will leave no stain on the skin. For washing his hands before and after an operation, he uses no costly patent liquid soaps, but a solution of what the housewife knows as "bleaching powder"—ordinary chloride of lime. Lacking this, he would make his hands as nearly surgically clean as possible by following the text book's advice, "hard scrubbing for five minutes with hot water, soap, and a nail brush, paying special attention to the nails."

If he had no access to specially prepared dressings and could not obtain them within a reasonable time, he would call for a napkin or a handkerchief that had *just* been laundered and would apply its inner surface to the wound. Note here, he adds, the text book's warning: "Towels, handkerchiefs, etc., which have been used or handled, though they may look clean, are never so in the surgical sense and are therefore particularly dangerous to use as compresses." As a general rule unless one can apply sterile dressings to a wound it is safer to leave it uncovered.

A Fable.

Once upon a time all of the birds and the beasts of the field and forest lived happily and harmoniously together. Food there was in abundance; of enemies there were none, and each could have for the taking all of the good things that kind old Mother Nature had provided for her children. The field and the forest was, indeed, an ideal place in which to live.

But as the population of the bird and the beast world increased, food became less abundant, and the problem of securing a good living and of putting away enough to sustain life during the winter months became more difficult. To make matters worse, the gray wolves and the vultures at this time severed their allegiances with the remaining birds and beasts and waged war against them.

Now the gray wolves and the vultures greatly outnumbered the remaining birds and beasts. Furthermore, they were cruel and cunning. They adopted any and all means to secure for themselves as much as possible of the good things to be found in the field and forest. Their favorite mode of attack was to lie in hiding and watch some bird or beast industriously accumulate a store of good things and, when conditions were favorable to swoop down upon him and take away the greater portion. They were very careful not to take away all, for they did not want the bird or beast to starve, as in that case there would be one less to work for them. Yes, the gray wolves and the vultures were cunning fellows.

Things soon became very serious for the birds and the beasts. The gray wolves and the vultures became more numerous and waxed sleek and fat from the labors of the birds and beasts, who daily became fewer, thinner and weaker. Many were unable to exist on what the gray wolves and the vultures left to them, and these slowly died of starvation. For a time it seemed that the gray wolves and the vultures were destined to be the sole inhabitants of the field and forest with all of its good things.

The Wise Old Owl, however, was not discouraged. He knew that the gray wolves and the vultures were cowards at heart and that their boldness and seeming courage was due solely to their numbers. He had supreme confidence in the birds and the beasts of the field and forest. He knew that if they would but act together the gray wolves and the vultures could be driven into the desert where many of them would surely perish from lack of food. Many times he called the birds and the beasts together and pleaded with them to act as one in their own defense; but the birds and the beasts heeded not his words of wisdom. They preferred to starve amidst great plenty rather than to exert themselves for their own welfare.

After much weary labor and many discouragements, the Wise Old Owl enlisted the services of the good fairy Right, and with her assistance the birds and the beasts were finally induced to try the experiment of ousting the gray wolves and the vultures from the field and forest. All but the bat promised to co-operate. He had no doubts but that the gray wolves and the vultures could be driven out, but he was a lazy fellow and he preferred to let the other birds and the beasts do the work, after which he expected to share in the benefits. But then, he was only a bat; he knew no better.

Led by the good fairy Right, the birds and the beasts advanced in a body against the gray wolves and the vultures, who, when they saw that Right opposed them, and that the birds and the beasts were determined to back her up, broke and fled in confusion. Many were killed in the rout that followed and the remainder were forced into the desert where they remain to this day, gaunt, sulking, cringing creatures, ever ready to spring upon and devour some helpless bird or beast that strays from the protection of his fellows, but, as a rule, hard-put to maintain life in their worthless bodies.

The birds and the beasts were amazed at the ease with which they had won their victory, but Right assured them that she had led many an apparently forlorn hope in the past and that in the end she had always been able to gain victory for those who had the ambition and the courage to band together and to fight for what belonged to them.

When the bat heard of the victory he was exceedingly pleased. He reasoned that he could now enjoy all of the good things of the field and forest without having exerted himself, and without having risked his precious hide in fighting for them. But his joy was short-lived, for Right sought him out, and as punishment for his treachery she commanded that he hang his head in shame forevermore, and that he hide himself from the eyes of all living creatures. And to this time the bat hangs his head downward in some dark hole or cave during the day, and he seeks for

the good things in the field and forest only under the cover of darkness when none can see him.

Moral:—The benefits of co-operation are for those who create them; unless one gives he cannot receive. Only the bat refused to co-operate and he must now hang his head in shame. Don't be a bat!—*National Cleaner and Dyer.*

Listen!

Woodrow Wilson, president of the United States, says to the men who run the railways of the country—the railways are the arteries of the nation's life and that upon them rests the immense responsibility of seeing to it that these articles suffer no obstruction of any kind.

The greatest single obstruction to the prompt handling of freight today, is the shortage of cars.

It is not possible to build new cars in time to relieve the situation.

There is no other means by which the capacity of the railways can be so economically and efficiently increased as by increasing the load per car.

You can help wipe this difficulty off the map.

It's easy! Listen!

No car is loaded unless and until filled to full visible capacity, or to 10 per cent above marked weight-carrying capacity.

A car loaded to full (10 per cent above marked) capacity can be moved just as fast as an under-loaded car and does not take up any more yard or side-track room.

That's 110 per cent efficiency!

An increase of only two tons per loaded car would be the same as adding 200,000 new cars to the supply available for public use.

Heavier car loading *will* eliminate the car shortage of the nation.

Just a little thought and quick action is all that is necessary.

How can you afford *not* to—"do your bit."

Employees Profit Sharing.

BY A. W. WILLIAMS.

Talk to any large Southern cotton mill owner for five minutes on general conditions, and he will make some sort of break on the labor situation. "My, but I don't see how we are going to operate at capacity if this keeps up." or perhaps he will come right out and use a few cuss words meaning "This is a hell of a situation." However, you "get him," and that the first time. There's nothing to it, it's some situation, and the outlook is not at all "rosy."

Large Northern industries have been overworking the South with labor agents for some time past. Agricultural conditions are such that the farmers can pay better wages, and take a chance of realizing enough off their crops to more than break even on the increase, due to the general advance in foodstuffs. The lumber industry is in a very prosperous condition, and is demanding labor. The coal situation is fierce, and miners have advanced wages and are continuing to do so. Next we have the military demand and the draft rule, which is taking hundreds of additional men from every section of the country.

The millman depends to a considerable extent on female labor, but women are going to take many jobs that men have been holding down, and are already filling such positions in some lines. The demand for women is going to be greater than ever before from all indications.

What's the answer?

Merely that the millman is going to have to pay greater wages.

"And hasn't he done it? Hasn't the cost of cotton mill labor advanced fifteen to twenty per cent from the first of the year?" Remarks the cotton mill owner.

True, wages have advanced, 38 per cent since July, 1914, but with the unprecedented demand and everyone crying "I can't get hands to handle capacity production," the answer is higher wages, but, where's it going to stop?

Perhaps the safest and sanest way to hold good labor that is already employed, increase production, and cut down overhead operating expense, is to make it worth while for the employee to linger a little longer. Conditions in mills have improved greatly in the past 20 years, but there is still room for considerable improvement. The average employee figures himself or herself as a cog in the machinery, an inanimate object so far as the foreman or owner is concerned, but a very animated object in so far as he or she is personally concerned, and as with everyone it is a question of "me first."

Many large mills and factories have successfully adopted welfare work as a means of holding their female employees, and holding their interest. A factory recently had a large-sized room fitted up for its female employees, installed a kitchenette for the girls to prepare their food, comfortable chairs and lounges, and also a talking machine and a lot of records so that the girls could dance or enjoy the music during the noon hour. Showers were also installed in a bathroom connected with the welfare quarters, a small library and plenty of magazines. The work has aided considerably in making the employees more satisfied, but the company will have to go further before many months.

The labor situation has become so tense in certain parts of Tennessee, Kentucky and other sections that local ordinances have been passed, under which the employee of Northern or foreign concerns, operating as labor agents, are forced to pay heavy licenses, running as high as $500, in order to solicit employed labor. Of course it is a question as to whether these ordinances would stand the acid test of a suit. They may and they may not. They appear to be thoroughly unconstitutional. Have been proven so in Alabama recently.

One manufacturer in a recent statement said: "I'm not worrying about the labor situation greatly. It won't affect me, and my only worry is whether it will not hurt business, and get me indirectly."

"What do you mean, it won't get you?" was asked.

"Well," explained the manufacturer, "I've been working for years in building up a satisfied, efficient organization, and I've got one. I don't believe a man or woman in my employ can be lured away from me by better offers, and while the war may get a few of the men, who are subject to the draft rule, as a whole I feel safe."

"And, what's this wonderful system that you have employed to hold your labor?" may I ask.

The manufacturer answered: "Merely that I have made it worth every employee's while to stick to me through both the fat and the lean years, they all feel like they are animated cogs in my machine, and feel that something may go awry if they drop out. They are satisfied with the company's treatment of them and with the company itself, and they further feel that they have something at stake. The real answer is *Profit Sharing.*

"A good many years ago I came to this country from the country known as the Emerald Isle. I had a strong back, a better arm, and very little else. I got me a good laborer's job, and began to come up. First I saved my money, but while in the lower births I observed what was going along, and as a result I have both the employers' and the employees' angle on the game. I remember that it was hard to take interest in work where I was merely a cog, that was paid from Saturday to Saturday. Many of the boys felt this so strong that they didn't show up on some Mondays. Everyone, almost, was working with nothing in sight but the pay envelope. Suddenly the old man put in a bonus system under which every employee got a certain percentage of the profits for the year.

"It worked fine, and I decided that if ever I got in control of a business, I would do the same thing. Finally I got into control of a small plant. I had gotten 'goggle-eyed' with the idea of making money, and couldn't see my way clear to giving away the profits. If men didn't 'come to bat' they got fired and new ones took their places. A lot of time and money was lost in showing these men the work, and getting them trained. After a few months it was Saturday night with them, and an endless chain of men came and went. I couldn't remember the names of half of them, and things were not going right. Production was big, but I could see that it wasn't what it should be.

"First I put the officers of the company on a profit sharing basis, or bonus system. Later I included the department heads, and then the salesmen. This went on for a time, but in 1912 the plan was put into effect throughout the entire plant to include every office and factory employee, and even including the messengers and the watchmen. The extra compensation amounted to ten per cent. This plan was followed in 1913, but in 1914 I concluded that the payment of any fixed sum of percentages on wages was practically an advance in wages, held until the first of the year, and not in reality any sharing in the profits.

"After investigating the matter thoroughly, and watching things closely, business having already shown an improvement, I decided to set aside a certain share of the company's net profits each year, to be prorated and divided among all employees according to the wages received. At the end of 1914, a bad business year, the employees received only 7½ per cent of their annual wages as a bonus. They were satisfied, however, and contented, and worked harder to make 1915 a successful year. At the end of 1915, the phenomenal profit sharing dividend of 32 per cent was paid, and this amount was considered a record of note, but it was considerably overshadowed at the close of 1916.

"I got all of the employees together at a little family banquet at one of the hotels. Everyone was there, the salesmen being in off the road. and department heads discussed the business with day laborers at the banquet table. I here announced that everyone who had worked for the company through the year 1916 would receive a bonus of just 58 per cent of the year's salary, and that I was more than glad to give it to them, but that I couldn't have done it except through the cooperation of every person on the payroll. Give you my word I couldn't finish my remarks for about ten minutes, there was so blamed much noise in that room. However, with any sort of luck this year, we should pay them another dividend, but it won't be any fifty-eight per cent."

"The business of this company during the three years of the profit sharing plan has increased from $750,000 to $1,250,000, an increase of a neat half million. In fact the company has just taken out permits and is now erecting an addition to its plant, costing $50,000. This company is not worrying about fine quarters, elaborate showing or anything like that, but merely space in which to manufacture. The employees are satisfied with any sort of quarters, but they are universally good quarters at that.

"The big secret of our success," explained the manufacturer, "has been that everyone, including something more than a hundred employees, is working for the company's interest. Also their own pocketbook, and that's where we get them. Get a man working for his own pocketbook, he's as careful as the boss of the big plant. These chaps are all working the best they know how, making short cuts to save time and material, calling attention of men higher up to improvements that can be made to save money, and giving John or Bill hell with a capital H if he don't come to taw. Everyone is watching everyone else to see that there is no waste of time or material. The thing extends all the way down the line and I have a sweet running plant. I could go to Europe tomorrow and know that things would run themselves. I'm in a position where I ain't even afraid to get sick."

A few of the other features being worked into the cooperative plan, consist of quarterly meetings and banquets of the entire operating force at one of the down town hotels. Here general conditions are discussed, sales matters, efficiency, and other things that will lead to better operation, and greater profits. Employees who formerly would never offer a suggestion are found studying ways and means to increase business, better the product, etc.

Each summer the company sets aside one day for a big picnic. A river steamer is chartered, and every employee, members of their immediate families and sweethearts are taken along. Substitute watchmen are employed and the plant is closed for the day. An orchestra is employed, and dancing takes place on the boat, and later at the picnic grounds, the company furnishes hot coffee, ice cream, lemonade, and bottled soft drinks on the grounds, and in addition pays each employee the price of his or her picnic basket. Every employee receives a full day's pay, and is unable to spend a cent from the time of leaving home until their return.

Last fall when the price of food and clothing began to climb out of sight the company increased wages during the fall. Wages paid are as good if not better than in any similar institution in the district, and the bonus is an individual matter.

"But do you think this plan would work in other industries?" was asked the manufacturer.—His was not a textile plant.

"Yes!" he replied, "I believe that practically every industry could set aside a portion of its net profits. If the company only makes $20,000 a year, and sets aside $2,000 to be divided among the employees, everyone will get a small portion of that amount, and will work harder to increase the bonus the following year. The man drawing $1,000 a year in my plant last year drew down an extra sum of $580 as a bonus, and it would take quite some offer to take him away from a job where he feels that he actually has money invested. In fact all of the officials and several of the department heads are allowed to hold a little stock, but I would be opposed to the cooperative company, where every employee held a share or more of stock. Here each man feels that he has a dictatorial right to run things on account of his investment, and it causes too much squabbling. Personally I believe in the system of commission or profit sharing from the president down to the firemen in the engine room, and I believe that there would be a whole lot less labor trouble if such arrangements could be made.

"It's a certainty that you wouldn't be troubled with strikes or walking labor delegates in an organization operating on this sort of basis, and a contented organization is one that produces. These men of mine are staying on the job steadily now, and understand their individual jobs so well that they work faster than in the days when there was constant shifting of employees. The result has been increased production all around, and a far better class of production at that.

"No! I don't believe that I have any cause to worry over my individual labor situation. I don't believe that anyone is going to offer anything interesting enough to take my men away from me, or my girls either. It would take the average manufacturer a little time to put such a system in operation, but when he got through he would have something."

Illumination as a Safety Factor.

BY R. E. SIMPSON.

From time to time we read in the technical press that 500,000 avoidable accidents occur in the United States every year, and that of this number approximately 25 per cent. are due, directly, or indirectly, to inadequate illumination or improperly placed lighting units.

To get proof of this statement in the form of statistics is almost impossible. Reports are issude annually by the labor bureaus of various states, and by the Federal government, containing tables giving the number and causes of various classes of accidents. Rarely, if ever, is poor illumination among the list of causes, although many of the reports mention poor illumination as an indirect or contributory cause. The paucity of statistics on the relation of illumination to accidents is responsible, in a measure, for the apathy of factory owners and managers toward their lighting conditions. A manager, upon noting that such and such a number of workmen were injured by unguarded gears, at a cost to the employer of so many dollars paid to the injured employee in the way of compensation or in the settlement of damage claims, is often led to see that his mill has adequate protective devices; but there is very little chance of his attention being directed to his lighting conditions by the statistics, and if it is true that 25 per cent of the avoidable accidents are due to inadequate illumination, he is overlooking an exceedingly important item.

For the purpose of showing the relation of illumination and accidents I have taken Figs. 1 and 2, and the text describing them, from the Travelers Insurance Company's monthly periodical known as The Travelers' Standard.

"The importance of good illumination, from the standpoint of safety to the workman, was well shown in a paper read by John Calder before the American Society of Mechanical Engineers. Calder shows the number of persons that were fatally injured in a large group of plants, during a period covering three consecutive years—grouping the data according to the months of the year.

"His general results are shown in Fig. 1, though we have modified the plan of presentation somewhat, believing that we have thereby made the influence of good light upon the death list even more evident. Mr. Calder gives a curve for each of the three years, separately; but we have combined the three curves into one, including under August (for example) all the accidents that have occurred during the month of August, without regard to the year—and so for each of the other months.

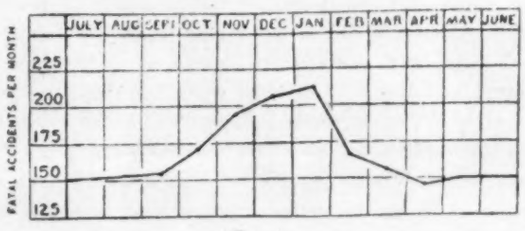


Fig 1

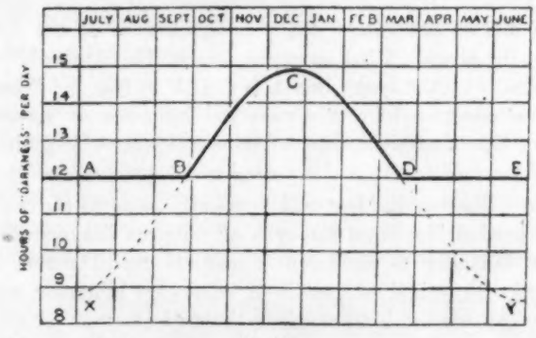


Fig 2

"Each of the dots at the angles or joints of the full line in Fig. 1 represents, by its height on the scale at the left, the number of accidents for the corresponding month.

"When all twelve of the dots have been located in this way, the irregular line that is shown was drawn between them, so as to show the general course of the accidents and to exhibit to the eye, as clearly as possible, the way in which they varied in number in the different months of the year. It will be seen that during July, August, September, March, April, May and June, the number of accidents per month (for the entire three-year period) remained practically constant, and equal to about 150. In other words, the diagram shows that when the day was long enough to give good illumination throughout the working hours, the number of fatal accidents was fairly uniform, and about 150 per month; but that when the hours of darkness increased, the number of accidents increased at the same time, so that

in December and January it was no less than 40 per cent greater than the normal number of 150 that might reaonably have been expected, if the daylight were as good in the winter as in the summer.

"Fig. 2 shows, in a similar diagrammatic way, the number of hours of darkness that there are, in the latitude of Hartford, in each calendar day of 24 hours, throughout the year—the word 'darkness' being here used, for the sake of brevity, to signify the period between sunset of one day and sunrise of the next day following.

"The diagram was drawn similarly to the one showing the number of accidents. Numerous points were laid off to represent, according to the scale shown at the left, the number of hours of darkness at the corresponding times of year. A smooth and continuous curve, X B C D Y, was then drawn through the points so located.

"The similarity in shape between the curves of the two diagrams, which is very marked, shows that there is a correspondingly close relation between the hours of darkness and the number of accidents. It could not be expected that the agreement would be good for the entire year, because when the nights are short enough to insure a good light throughout the working day, a further shortening of the period of darkness would not diminish the number of day accidents, but would affect night labor only.

"Assuming that the length of the night would have no influence so long as the period from sunrise to sunset exceeded 12 hours, we have drawn the straight horizontal lines AB and DE at the height corresponding to a 12-hour night; and to understand the real significance of the diagrams, the shape of the irregular line in Fig. 1 should be compared with the heavy line A B C D E in Fig. 2. When they are compared in this way, the influence of proper lighting upon accident prevention comes out very plainly indeed."

The following incident which recently came to the writer's attention illustrates the evils of "spotted illumination" and the danger to workmen if one of their number is afflicted with retinal asthenopia or temporary blindness, and shows how easy it is to overlook the real cause of an accident. Two men were at work in a shop lighted by electric incandescent lamps, equipped with obsolete tin reflectors suspended close to the work. The upper zone of the shop was in semi-darkness—a condition which became more pronounced to the workmen as they looked up from their work. Some sections of the machinery and floor were brightly lighted, while others were dim. In going to another part of the shop one of the men stumbled over a casting that was lying on the floor, and in an effort to save himself from falling he blindly put his hand on a belt-shifting rod which controlled the machine of another workman in the next row. This action threw over the belt and started the other machine. Fortunately, no injury resulted, as the second workman had just finished a piece of work, and was engaged at the time in selecting another piece to put in his machine. It can readily be seen that a serious accident might have happened if the second workman had been engaged in adjusting the work in his machine, as he would have been totally unprepared for the starting of the machine.

The two men had a wordy war, the first workman blaming the man who had left the casting on the floor, while the second workman accused the first one of stupidity. Neither of them, apparently, considered the fact that the first workman was demanding an extraordinary performance from his eyes. There was marked difference in the reflecting values of the two parts of the castings on which he had been working. One part was highly polished and had a high coefficient of reflection, while the other part was a dull iron-grey having a low reflecting value. The man's eye muscles had been under constant strain in an effort to adjust the pupillary opening to the light-reflecting conditions—the opening remaining relatively small, however, so long as the eyes were focused on the work. When he turned from his machine his eyes were compelled to adjust themselves to the change from a brightly lighted field of view to a dimly lighted one; and inasmuch as the eye muscles do not enlarge the pupillary opening as quickly as they contract it, he was laboring, for a time, under a serious handicap.

If the incident had had a serious ending, the newspapers would have reported the accident as due to a fellow workman accidentally moving a belt shifter and thus starting up his comrade's machine; but an impartial and well-informed jury would have given improper illumination as the cause.

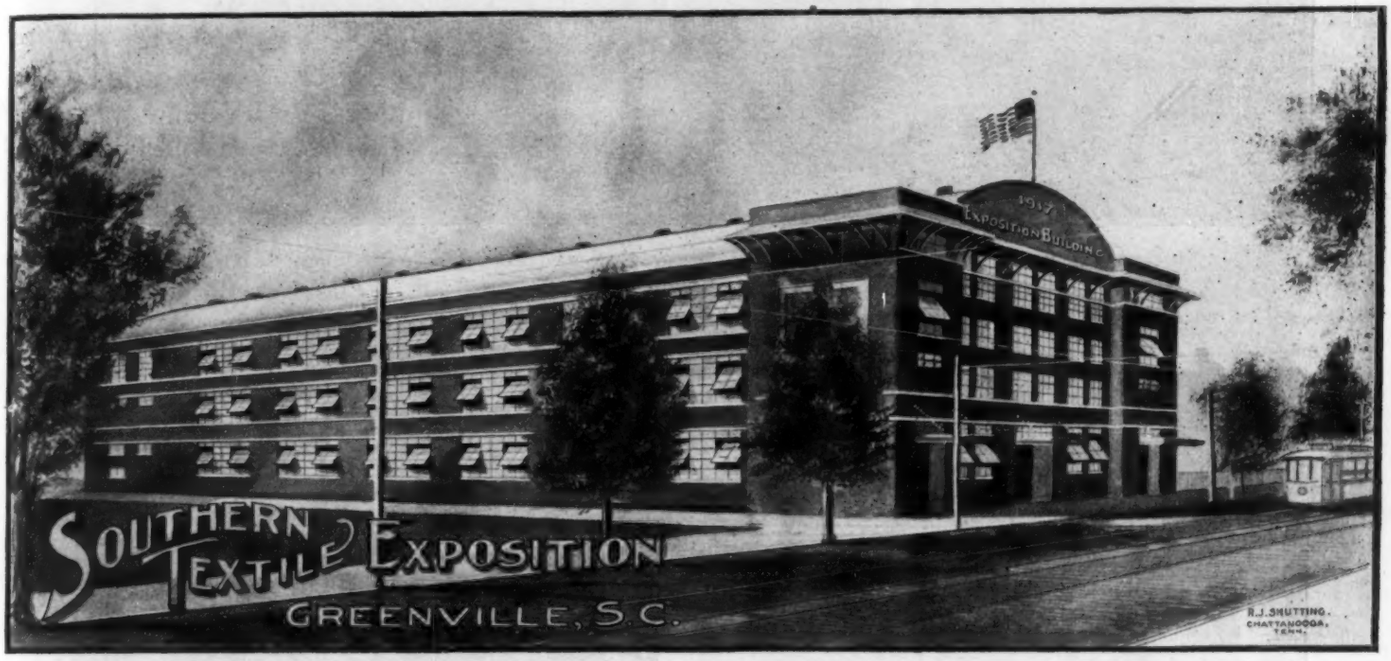
To many persons this incident may seem trivial, and it would be so if it were an isolated case. There are hundreds of factories in this country where the lighting conditions are similar to those that prevailed in the case just cited, and these conditions are responsible, in the aggregate, for thousands of what might be termed potential accidents. The stage is all set and ready and the frequency of accidents, or freedom from them, is largely a matter of chance, with the odds greatly in favor of the accidents. A little attention to the lighting details in these factories would materially reduce the chance of accidents, and would therefore reduce the number of them.

It may seem to some that I am giving too much emphasis to the subject of falls as a cause of accidents, but statistics show that this is not the case. Very few industries are exempt from accidents due to falls. Poor lighting on aisles in shops is responsible for quite a fraction of these accidents. In many cases the working area in a shop is well lighted, while no provision whatever is made for lighting the stairways and passageways. There is no work done in these places, and for that reason it does not occur to the owner that they should be lighted. The steps of the stairways are generally dark-colored and worn round at the edges—conditions which increase the hazard. Substantial rail guards and stair treads, and lighting units with proper reflectors, should be part of the equipment of every stairway.

During a recent inspection the following conditions were noted: A 12-step stairway at one end of a room led from the basement to the first floor. The nearest lighting unit in the basement (an unshaded carbon lamp) was 35 feet from the foot of the stairs, and the nearest unit at the top was 20 feet away, a shadow being cast at the top by a post between this unit and the top step. An unguarded driving belt, extending half-way over the stairs, ran parallel to the stairway at a height of 5 feet, 7 inches. The belt was operated so that the turn on the under side ran down with the stairs. A person coming in contact with the belt would receive an impetus sufficient to hurl him to the bottom of the stairs, causing him serious or even fatal injury. The belt should have been equipped with a guard painted white,

and adequate light should have been provided so that anyone could clearly see the guard and the steps. When this was pointed out to the manager he agreed that these precautions should be taken, confessing at the same time that the danger had not occurred to him.

This brings out the point that making the general working conditions safer is often a matter of looking into the details of the lighting situation. The shop engineer and manager will generally give heed to the cost of installing, the cost of operation and maintenance, and the location of the lighting units, in the shop where work is performed; but the stairways and passageways, if considered at all, are provided with a lamp here and a lamp there, without due regard to the demands of safety.—*The Isolated Plant.*



As the Building Will Look When Completed.

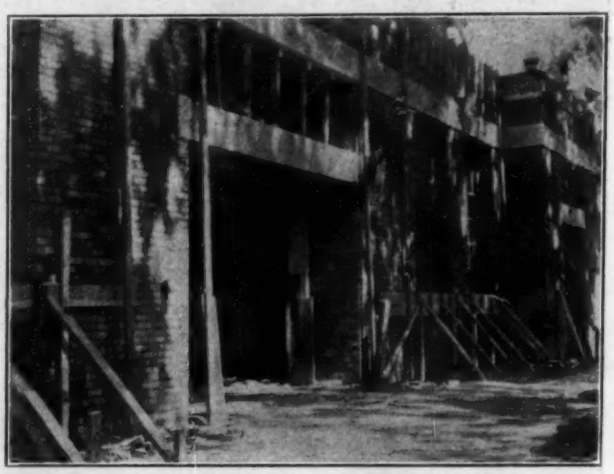
The fall convention of the Southern Textile Association will be held in Greenville on November 15th, 16th and 17th. It is planned to have brief sessions during the three days named, and many notable speakers will be on the program. Among those already invited are Richard H. Edmonds, of Baltimore, Md., and Dr. John E. White, of Anderson, S. C., both orators of national reputation.

The second Southern Textile Exposition which is also to be staged at Greenville during the week of November 12th to 17th, will be in full swing by the time the association members begin to officially arrive, and this added attraction, which, by the way, will eclipse any similar affair ever held in the southern states, will bring to Greenville the largest attendance in the history of the textile association.

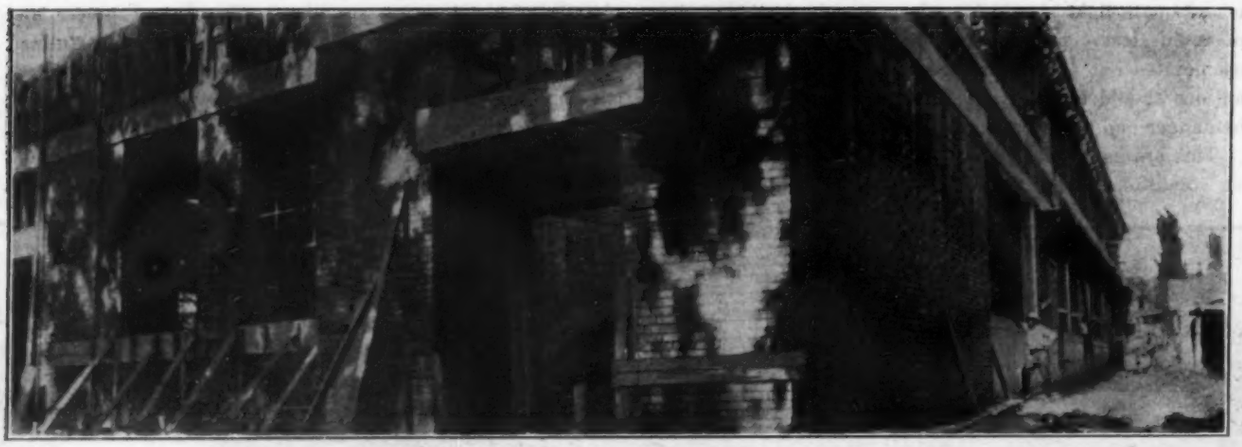
The semi-annual meetings of the Southern Textile Association are always well attended and it is thoroughly understood that its sessions are helpful to those who attend and participate in its deliberations. Aside from the social features of a gathering of this kind, there are many technical questions upon which the members debate, to the end that much of practical value is derived.

The owners and managers of the Southern textile mills have lately recognized the value of these meetings to their overseers and superintendents and many of the mills now encourage attendance upon these meetings to the extent of paying the expenses of their men who attend. It is expected that many of the mills throughout the country will send large delegations to Greenville this fall to attend both the Exposition and the meeting of the Association. The educational value of such attendance can hardly be overestimated. At the Exposition will be seen the last word in modern textile manufacturing methods and the Association is planning to have the best talent that can be procured to instruct the membership along practical lines.

The new textile building, which is well under way, as may be seen by the illustrations, will be completed in ample time for the two events referred to. Every square foot of available space in this great building promises to be taken well in advance of the dates set for the opening of the show. Already approximately 75 per cent of the space has been applied for and new applications are arriving daily.



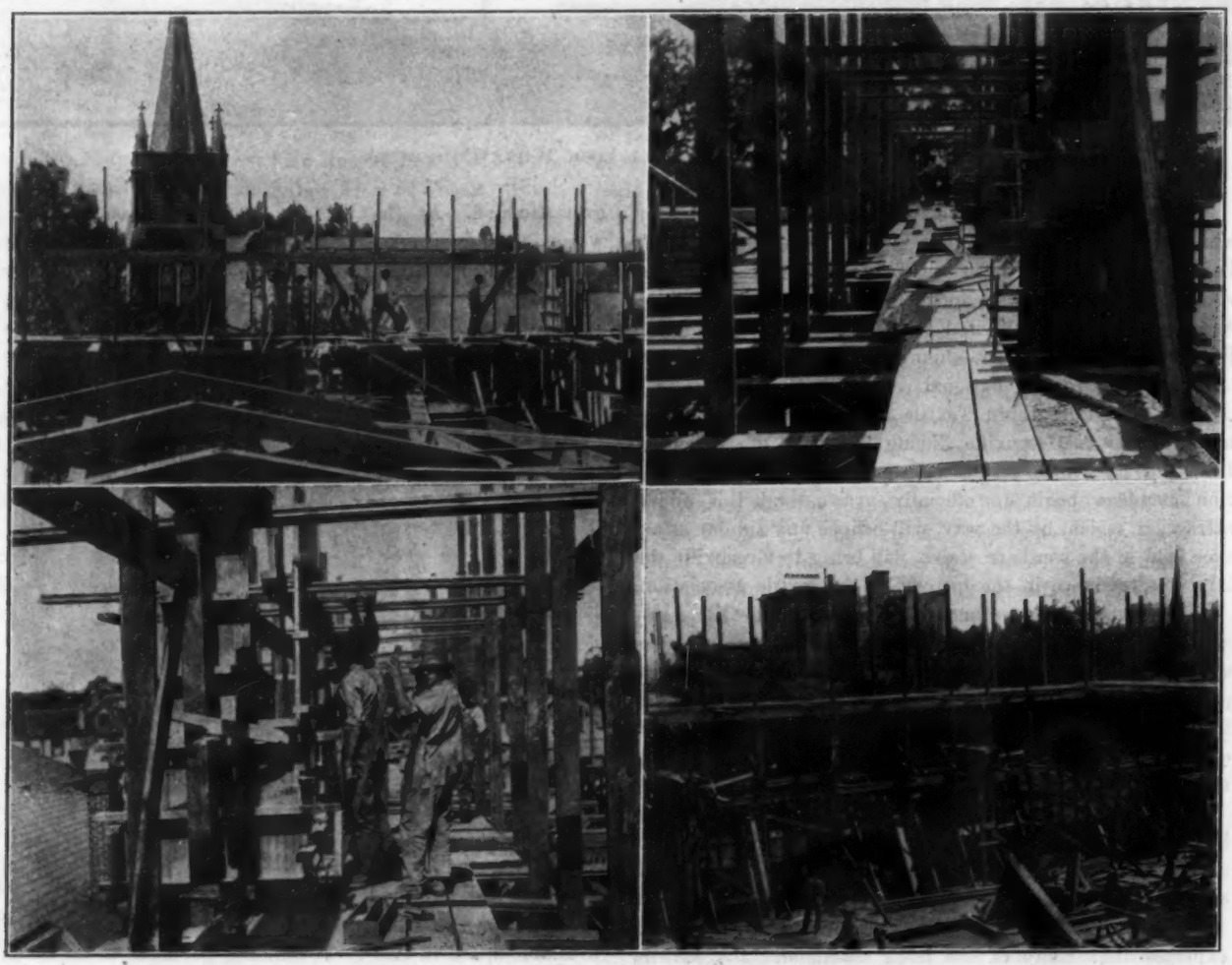
The Main Entrance.



One of the Side Entrances and the Side of the Building Looking Toward the Rear.

A section of the Exposition Hall has been set apart as a "Mill Products Department," and it is the purpose of the management to gather here a wide and representative line of textile products made in the South. An invitation is extended to all textile manufacturers to help make this department one of the strongest features of the South's greatest textile exposition. All matters pertaining to the Exposition should be addressed to Southern Textile Exposition, Inc., Greenville, S. C., and those concerning the Association should be addressed to A. B. Carter, Secretary, Greenville, S. C.

J. M. Davis, of Newberry, S. C., president of the Southern Textile Association, has announced the appointment of a number of committees to serve during the present fiscal year.



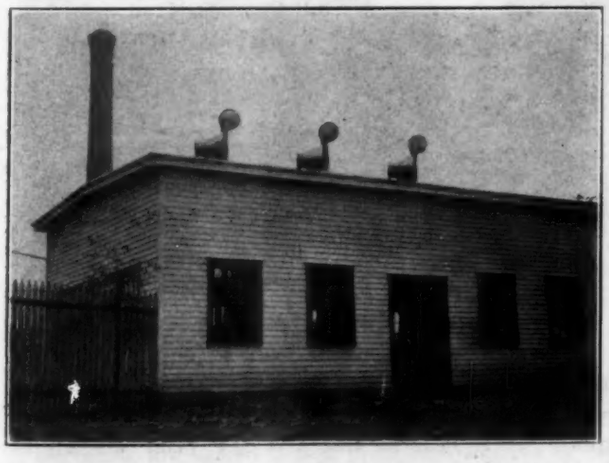
Putting Up the Last Forms for the Concrete Roof Supports. The Floor Seen in the Picture at Bottom Right is the Second Floor and the Large Building in the Distance the Imperial Hotel. Photos Made on Sept. 12th.

Mill Conditions and Market Reviews.

What the Southern Mills Are Doing.

The Massachusetts Mills In Georgia, at Lindale, Ga., are building a new dye house for indigo denims. This dye house will be 300 feet long by 50 feet wide and three stories high. It is located between the two mills just back of the connecting building. One side extends along the creek bank the entire 300 feet, a reinforced concrete retaining wall holding the creek in place and acting as a foundation for one wall of the dye house. When completed the immediate charge of the dyeing department will be placed in the hands of an experienced and specially trained man from the Massachusetts Mills in Lowell, Mass., Agent Meikleham having already completed arrangements to this effect.

Preparing for the New Dyehouse at the Massachusetts Mills.



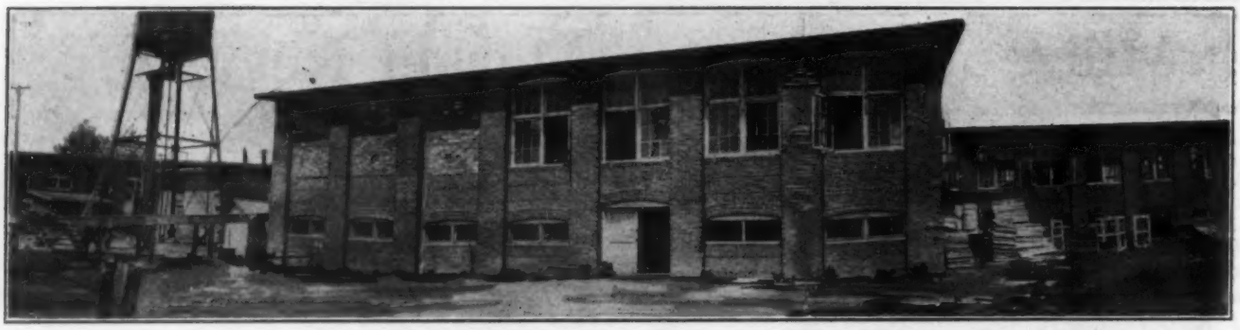
Wet-Wash Laundry at the Massachusetts Mills.

Sometime ago the announcement was published that the Massachusetts Mills at Lindale, Ga., anticipated the establishment of a wet wash laundry where the family washings of the operatives could be washed and rough dried at a comparatively low cost and in a much more convenient and sanitary manner than was possible by the use of negro wash-women. A separate building was constructed for this laundry, which is shown in the illustration. A part of the machinery has been installed, as may be seen from the interior view. This view shows two of the washing machines at the right, a third machine, which is not shown, is closer in the foreground toward the camera. At the time the photograph was taken this machine was in operation, and it was therefore impossible to photograph it under the prevailing light conditions. The equipment in this plant was all manufactured by the American Laundry Machinery Co., of Cincinnati, who are at the present time furnishing a clothes dryer or "tumbler" for use in rough-drying the clothes washed by the washers already in place. An experienced laundryman is in charge of this equipment, and it is expected that the clothes may be collected, laundered and rough-dried for approximately three cents per pound.

Among other improvements noted at the Massachusetts Mills were a number of new operatives' cottages and also a new church building, all of which were constructed by the regular mill construction gang working under the supervision of Master Mechanic R. W. Van Tassel. A "Cyclone" property protection fence has also been installed around the mills in place of the old wooden picket fence formerly used.

One Corner of the Laundry Interior.

Many improvements are being made at the plant of the Anchor Duck Mills at Rome, Ga., concrete sidewalks, curbs and gutters are being installed throughout the mill village, and in the places where yards have not already



THE PLANT OF THE NOBLE-BEVERIDGE CO., AT CEDARTOWN, GA.

been sodded, the sodding process is going on, and green lawns fill all the interstices between the concrete walks and the houses. Sanitary closets have been installed in every house in the mill village and the contract has just been let for a complete outfit of new toilets for the mill proper. Eleven new four-room houses for the use of operatives are at present under construction and are built in the most approved manner with fire-resisting roofs of asphalt shingles finished with a crushed slate top. These houses are handsomely finished inside. Vogel patented frost-proof closets are used throughout this village.

The Walton Cotton Mills at Monroe, Ga., have decided to install electrical equipment and power. The mill has an approximate capacity of 10,000 spindles and 316 looms. Central station service has already been contracted for.

The Trion Co., Trion, Ga., has placed an order with the Whitin Machine Company for 54 spinning frames, tape driven and wide gauge.

The Courtenay Mfg.. Co., Newry, S. C., have just completed the installation of ball bearing hangers. A new coat of paint on the entire inside of the mill is adding much to looks. An air of cleanliness prevails and they have employed two expert electricians in wiring the village. An addition is being made to the water equipment by a large reservoir to furnish water for the village.

The new equipment at the Winnsboro (S. C.) Cotton Mills is to include 125 new twisters. The mill is nearing completion. Ten houses are to be built for overseers in the new village and the church has been moved to a new site.

The Georgia Cotton Mills at Griffin, Ga., recently adopted the group insurance plan for their entire group of operatives. They have also established a free nursery and kindergarten in connection with the welfare work of these mills. About the first of September they declared a 10 per cent war bonus, which effected every operative connected with the three mills, no matter what his position might be.

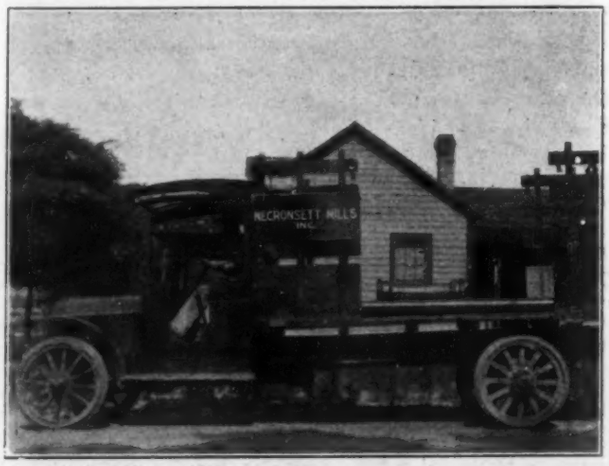
Fire destroyed a four-room operative's cottage at the Rushton Cotton Mills, Griffin, Ga., recently. This is one of the mills that is being worked upon by the United Textile Workers of America in an endeavor to unionize the operatives.

The Brown Manufacturing Co., Greenville, Tenn., contemplate manufacturing surgical dressings, such as absorbent cotton and sterilized bandages.

The St. Pauls (N. C.) Cotton Mill Co. will build a 200 foot addition to its present plant. It has plans and specifications for this enlargement.

From time to time we have printed items about the Noble-Beveridge Company of Cedartown, Ga., the new finishing plant that was organized approximately two years ago. While this organization is listed as bleaching, dyeing and finishing cotton goods, they make a specialty of waterproofing army duck in the various shades required by the Government. The plant is being operated under the experienced supervision of General Manager P. J. McNamara, which at once establishes the quality of the product turned out. A general view of the plant is shown herewith, the boiler room being at the extreme left of the building beyond the tank, a portion of which is not included in the illustration.

The Jordan Mfg. Co., of Monticello, Ga., who have manufactured bobbins and skewers at that place for over 17 years, have just completed a branch plant at Toecane, N. C. The new mill is located near the highest point of



A TRUCK RECENTLY PURCHASED BY THE NECRONSETT MILLS, INC.

the Blue Ridge Mountains and has access to the finest rock maple, birch, beech and other hardwoods that are grown. It is believed that this new plant will almost double the present output of the Jordan Mfg. Co., and enable them to share a larger part of the Southern cotton mill orders for speeder, intermediate and slubber bobbins, skewers, warp bobbins and cop butts.

An amendment to the charter of the Little River Manufacturing Company changes the name to the Laura Cotton Mill. J. A. Long is President of the corporation.

Highland Park Mill No. 3, at Charlotte, N. C., are now having all the operatives' cottages painted inside. They have recently been re-finished outside.

The Victor Mills, near Fayetteville, N. C., has recently arranged to screen every operative's cottage throughout the village against flies and mosquitoes. Several new cottages

have recently been added to the village and an office building constructed. The mill is now being painted inside. Another innovation at this time is a cooperative store which was recently inaugurated to help reduce the high cost of living.

The addition of shower bath equipment for the use of the operatives is a recent innovation with a number of Southern mills, particularly in the Carolinas. They have proven very attractive to the operatives in every place where installed, and the coming of another summer will doubtless see a great many more similar installations in other Southern mills.

The Florence Mills at Forest City, N. C., have recently enlarged the dye house and added a new raw stock dryer to the equipment.

The Necronsett Mills, Inc., at Cumberland, N. C., have recently purchased some new machinery for the mill to take care of some proposed additions and have also purchased a complete moving picture outfit for the new library building recently built at this plant.

The Harriet Cotton Mill No. 2, at Henderson, N. C., is adding a new Foster winder and several spinning frames.

Watts-Stebbins & Company, of 46 Leonard St., New York City, have been appointed sole selling agents for the Georgia Duck & Cordage Mill of Scottdale, Ga.

The Anderson Cotton Mills at Anderson, S. C., are doing a large amount of painting and other necessary repairs around the mill in preparation for the winter season.

The machinery for the new Charleston Waste Mills is arriving and rapidly being erected. This company is to manufacture cotton shoddy.

The LaFayette (Ga.) Cotton Mills are adding 2,240 spindles of Saco-Lowell make and 40 Model E Northrop looms. This machinery is for the new addition which was mentioned some time ago.

It is reported that the Efird Mfg. Co., of Albemarle, N. C., are considering the erection of another cotton mill.

The Advance Mfg. Co., is the title of a new company that is to erect a cotton mill at Fayetteville, N. C., for the manufacture of army cloth. As soon as the buildings can be completed the new mill will start at work on Government contracts. This mill is to be built on a site near the Cape Fear Mill. E. H. Williamson of Fayetteville, is one of the incorporators.

The New England Mill Situation.

The steady decline in raw cotton prices has brought about quiet trade in cotton goods. Manufacturers and merchants are agreed that a price readjustment in cloths must be made before late contracts will be placed. In the interval the withdrawal of government buyers from the markets tended to increase the unsettledness of the market situation. The most radical decline in cloth prices was in print cloths of a staple character the 38½ inch 64x60's going to 9 cents from 10¾ cents, and the 68 x 72's dropping to 10½ cents from 12 cents. These declines represented the extremes of the new movement, and were not reflected in sheetings or in fine combed yarn goods, to more than one half the percentage.

A feeling has been existing in New England for some weeks that the top of the war boom has been reached and further trade will be on a more or less restricted scale. Neither merchants nor manufacturers look for a serious contraction in the margin of profit to a point where fair earnings cannot be made. Thus far cotton has gone down faster than goods, and this is expected to be the course of the readjusting movement until a staple basis of trading has again been reached. The factors that have unsettled New England opinion have not all been those seen in the cotton trade. The probability of heavy taxes on corporations and on excess profits, the needs of the goverment for war loans, and the constant withdrawal of skilled men from various pursuits, have all tended to increase the conservatism of views.

The purpose of the goverment to watch cotton exports more carefully so that cotton may be kept from the nation's enemies has met with warm approval, and it is expected that similar care will be exercised in the matter of goods sold for export. For a time this may cause quiet trade in foreign departments but ultimately it will place business on a safer footing

The mills have weathered the summer period better than they expected to. By this is meant that there were fewer labor troubles and fewer wage demands than many manufacturers were anticipating. Production was cut down considerably by vacations of operatives and by the constant drain of workers to other industries but on the whole deliveries were maintained. Some wage advances have already occured and are expected to forshadow a upward revision later on. The Nashua Mills announced an advance to all operatives, and some other concerns made advances without formal announcement. Patriotic sentiment is running so strong in the section that I. W. W. agitations are more easily strangled than was the case a year ago.

The movement on the part of New Bedford manufacturers to attempt a reversal of methods for paying for cotton, whereby payments will not be made until deliveries occur, has not met with anything more than encouraging talk on the part of other manufacturers. The irregularity of transportation is bound to be very serious all this crop year and the introduction of any new plans is certain to cause friction. It is stated that some cotton dealers will continue to ship as soon as possible to New Bedford warehouses and sell from them rather than from their fields and this will probably meet conditions such as manufacturers want to lay down in the matter of payments.

Among cotton machinery dealers it is stated that the very high prices asked for new output are not stopping inquiries for many things that cannot be supplied. Arrangements are going on all the while so that any machines wanted for government work are supplied promptly to the exclusion of all other business. The shops are as busy as they can be and there is nothing in sight to warrant expectations of dull times in this quarter for some years. Foreign inquiries come in steadily and cannot be attended to. Automatic loom orders ahead are stated to be as large as makers will accept.

Finishing and bleaching plants have not been as busy of late as they were a year ago at this time. The converting trade has been slow in placing job printing orders on fine goods and the orders for bleaching have been slow. The orders for fine and fancy work have been smaller than

a year ago. There has been as large a business offered on khaki dyeing as anyone can handle, and some of the black dyeing plants have been kept very busy. More business has been offered than usual on narrow printed fabrics from exporters and from home trade factors. As a rule piece dyeing plants are employed more than either bleaching or printing plants.

During the past two or three weeks all the leading manufacturers of dress ginghams have withdrawn from the markets. They have sold their production as far ahead as they can go with any hope of making satisfactory spring deliveries. The business booked has been very large and of course the profits assured are good. The demand for 32-inch dress ginghams, fine zephyrs, and tissues, has been far in excess of possible supply for next spring. The demand for romper cloths and other strong fabrics for children's wear has been persistent and in excess of possible output for this year. Staple ginghams sold as high as 15½ cents a yard in New York this month in small lots wanted by the jobbing trade. Some of the mills that put a price of 16½ cents on dress ginghams early in the selling season secured 17½ cents for small case lots for export.

Printed goods have been quiet in the markets. The strike of printers at the American Printing Company has continued, and about half the machines have been idle. This strike is a result of a demand for a closed shop on the part of printers who have not been working under union conditions. The management decided to fight that issue at any cost and have been gradually winning. As the works are so largely employed on khaki dyeing for the government the extent of the strike has not been dangerous.

Print cloths have been very weak and trading in New England has been on a conservative scale. But the New York trading between second hands has been demoralizing, some business having been put through based solely on a future cotton market and not backed in any way by what actual cotton was bringing. As there is no way in which manufacturers can avoid this trend in business they decided to stand pat until some definite basis could be arrived at in cotton and until there were some signs of accummulating goods to force sales.

The Fall River mills have been so generally employed on narrow and sub-standard cloths that they have not felt disposed to meet the irregular low values on staple wide goods. While sales of standard 38½ inch 64x60's were being made in New York at 48 cents per pound, some Fall River mills were selling narrow odds, 25 inch 56x44's, and similar goods, at 55 cents per pound. The cooperative competition plan of exchanging reports of sales of goods has proved satisfactory thus far with Fall River mill men and they are inclined to regard it of great service in a declining market. In a rising market it does not count so much.

New Bedford mills have been finding it more difficult to get orders on fine goods owing to the resistance offered by converters. The latter have felt that prices were too high for them and they have been content to go to their trade with goods carried over from last season and have not shown as many varied styles as in recent years. The New Bedford mills have held prices steadier than in any previous sustained dull peroid. This can be accounted for in part by the fact that it has been possible for mills to find work on yarns and to stop looms without serious disorganization of working conditions. It is believed that trade with the fine goods mills will be better from this time forward than has been since the spring season opened.

Mills making cotton blankets and napped goods are in a very strong position. The Esmond mills are sold as far ahead as their agents care to go while the demands made on the big Nashua blanket mills are far beyond anything they can meet. The Tremont and Suffolk mills went out of their fiscal year with absolutely no stocks in agents' hands. On all fancy flannellette lines mills cannot begin to meet the demands for goods and if any accumulations appear before January, they will be snapped up at once for export. The foreign demand for napped goods grows larger the longer that German and Austrian mills are kept out of the markets of the world.

White goods sales for spring have been better than sales of some other spring lines. This was explained by merchants by the fact that retailers and jobbers were convinced that very fine white goods will be scarce because of the scarcity of very fine yarns. Such lines as fine batistes, nainsooks, persian lawns, and similar goods were taken from jobbing stocks by the retailers and will be carried over by them at a profit for the next season unless the war ends unexpectedly. Towels have not sold well in the fancy descriptions and turkish towels have been slow. Huck towels have done better. Quilts have not done so well for late fall and early spring trading. Some mills have stocks on hand. In this quarter of the market home economy will count, just as it has been counting in the lessened demand for window shades and umbrella goods.

The Bates, Stevens, and Monument mills, manufacturers of fine and crochet bedspread fabrics have taken orders from the government for the manufacture of Nos. 10 and 12 duck for various war purposes. They have changed over their quilt looms for this purpose. Some of the smaller carpet mills and some of the worsted weavers are also being asked to do the same thing. There will be no dearth of goverment orders in this section for some time to come.

Lancashire Notes.

BY AN ENGLISH CORRESPONDENT.

By the time these notes appear in print the Lancashire cotton trade will be running under organized restriction of production. It will be remembered that, following the crisis in the second week in June, with its record rise of prices, a Cotton Control Board was set up, with powers, subject only to the Board of Trade, to regulate the buying and selling of cotton and the manufacturing of yarn and cloth. From the first day of the new regime no cotton has been bought and sold except under license of the Board. Ordinary business was at once suspended and the Board then proceeded to take a census of all cotton stocks with a view to coming to a conclusion as to the extent to which it was necessary to restrict production. The census having been completed, the Board took a full month to agree as to the method by which the running of machinery should be curtailed, so varied were the interests affected. Egyptian cotton, for example, was much more plentiful than

American, and it followed that the spinners of these two classes of raw material did not always see eye to eye. Then there were views of the operatives' representatives, who wished to safeguard their members from hardship as a result of unemployment. In addition, there was the question as to how far the whole problem was one of shipping and what hope the Board of Trade could hold out to the supply of more tonnage for the needs of the trade. Shipping is unquestionably a very large factor in the situation and it is an open secret that the Board of Trade delayed its approval of the Control Board's scheme in order to give the fullest possible consideration to the possibility of providing more ships for the conveyance of cotton.

The scheme of the Board is so unique in the history of the cotton industry that no apology is necessary for giving it in full. It is as follows:

(a) That the rationing of cotton on the lines already laid down be continued, and, by co-operation with the Liverpool and Manchester Cotton Associations, encourage imports of cotton to the fullest possible extent.

(b) That a week's notice be given to all cotton spinning firms (including spinners of waste), ordering a stoppage of all but 60 per cent of their total spindleage and the equivalent preparatory machinery. Such stoppage shall take effect on and after Monday, September 3rd, 1917.

(c) That license be granted to spinners of Egyptian and Sea Island cotton who wish to work more than 60 per cent of their total spindleage and necessary preparatory machinery, on the following terms:—

Per spindle per week, calculated on total spindleage of mill.

	Mule spindles.	Ring spindles
60% and below 70%	1/8d.	3/16d.
70% and below 80%	1/4d.	3/8 d.
80% and below 90%	3/8d.	9/16d.
90% and below 100%	1/2d.	3/4 d.

Example.—A mule spinning mill containing 100,000 spindles: 60,000 spindles may be run without payment. If the firm desires more than 60,000 spindles they will be required to pay the levy as above on the full 100,000 spindles.

(d) That licenses be granted to spinners of American and all other growths of cotton (except Egyptian and Sea Island, which are dealt with in clause C hereof) to work up to 70 per cent of their total spindleage on the payment of 1/8d. per spindle (mule) or 3/16d. per spindle (ring) on the whole of the spindles of the mill.

(e) That licenses be granted to spinners of American and other growths of cotton (except Egyptain and Sea Island, see clause C.) who are employed on Government contracts to work more than 70 per cent of their total spindleage on their producing definite proof of such contracts, and subject to the payment of a weekly levy at the rates specified in clause C hereof.

(f) That notice be given to manufacturers to stop all but 60 per cent of the total number of their looms on and after Monday, September 3rd, 1917, so that within four weeks of the date of such notice they must not be working more than the aforesaid 60 per cent. This extension of time is in order to meet the working up of beams at present in the looms.

(g) That a license to work extra looms be granted to manufacturers on the payment of a weekly levy of 2s. 6d. per loom on all looms working over and above the 60 per cent on looms up to and including 72-inch reed space; over 72-inch reed space the levy to be 5s. per week per loom.

Example.—A firm with 100 looms up to 72-inch reed space: 60 looms (60 per cent) can be worked without payment of levy. If the firm wished to work extra looms, say all the 100 looms, they would be required to pay a levy of 2s. 6. per loom per week on the 40 extra looms.

(h) That in consideration of the notices for advances in wages sent in by the operatives' organizations, being suspended, the moneys received from the payment of levies referred to in preceding clauses will be used by the Board of Control for the following purposes:—

(a) To prevent the depletion of the trade union funds.

(b) To ameliorate the want and distress which the temporarily unemployed operatives would otherwise be put to.

(c) For any other purpose (brought on by the crisis) that the Board may think proper.

This scheme will be dealt with jointly by the Board of Control and the trade unions and employers' organizations with a view to causing the least inconvenience and hardship during the present critical period, the main object being to spread the burden equally on all sections and to give practical proof of the desire of both employers and employed to work together for the good of all.

This plan received the unanimous approval of the Control Board, but it is too early yet to say how it will work. Clearly, one condition of its success is that the operatives should withdraw their claims for advances of wages. So far, only the operative spinners have done so, and they only on condition that the other sections do the same. The spinners were claiming an advance of over 30 per cent and the card and blowing-room operatives one of 25 per cent. The employees are making loud complaint of the struggle to meet the greatly increased cost of living and there can be no doubt that for them the scheme involves a considerable sacrifice. There is further the rather knotty question as to what claim the military authorities will have on men who are thrown out of employment by the stoppage of machinery. These questions employers and trade union representatives are meeting to discuss. In Bolton there is some complaint among spinners of Egyptian that, though they have enough raw material, they should be compelled to stop machinery or else pay for the privilege of running it; but it is argued on the other hand that the object of the Board is to preserve the trade as a whole and that the situation is such that only by the principle of the strong helping can the industry be saved from disaster. The scheme is to be put into operation for three months on trial. A lot may happen in three months nowadays, and at the end of that time shipping may come to the rescue.

The annual report of the British Cotton Growing Association states that the whole of the 1915-1916 cotton has been received at Liverpool from West Africa, Uganda, the Sudan and Nyasaland. Owing to the lack of tonnage, however, a considerable portion of the West Indian Islands cotton remains to be shipped. Much greater difficulties are being experienced in shipping the 1916-1917 crop, but strong representations have been made to the Government on the subject. All the crop has now been bought and unless it is shipped the most serious difficulties will arise. The association and other firms engaged in the trade will be unable to repay the large sums advanced to them by their bankers, sums which are estimated to amount to over £1,000,000. They will also suffer serious losses in closing up their contracts in futures, and may even be compelled to withdraw from the business. Moreover, if they are unable to ship the past season's crop, it will be absolutely impossible for them to obtain the funds to buy the crop which is soon to come on the market. Thus the natives will be left with the cotton on their hands. This, states the report, may cause serious trouble in some of the colonies concerned, and will certainly create discontent in Lancashire, as there is bound to be a considerable reduction in employment and wages owing to the shortage of cotton.

Speaking at the annual meeting of the association, the chairman, J. Arthur Hutton, said the withdrawal of the Government grant made it impossible for the association to undertake any new enterprises, a fact which was much to be regretted in view of the present position of Lancashire in regard to the supply of raw material. It was not too much to say that the future of Lancashire and of the commercial welfare of the whole country depended upon whether cotton-growing could be successfully developed within the British Empire. So far as shipping facilities were concerned, the outlook for next season was a grave one. The Government had given a favorable reception to their representations and the association had hopes that something would be done. Still, they wanted to know whether the Government were in earnest, as if the Government did not help the work of the last few years would be thrown away.

Mr. Hutton announced that representatives of the Egyptian Government were in England negotiating with regard to the Sudan scheme. He hoped the Government would realize the importance of the scheme as it was the only one which offered any prospect of a considerable production of good cotton in the immediate future. India, in his view,

would never grow cotton equal to that grown in the Sudan. The Government, said Mr. Hutton, could find money for all sorts of other purposes and it had even provided money for the development of Italian trade. Recently, it had found ten millions for a bank that was going to do nobody knew what. Money was also found for the production of dyestuffs, though what was the use of dyestuffs without cotton he did not know. For the Sudan scheme only three millions were needed, but it was a question of doing something at once or not at all.

Cotton Comment.

BY H. & B. BEER.

New Orleans, September, 1917.

The downward tendency of the market, referred to in our review last month, was more decided of late, a further decline of about 3 cents per pound, or $15 per bale, having been recorded since our last issue.

In keeping with general expectations, based upon private advices from the interior, the government report of August 31st indicated a yield of 12,449,000 bales against 11,949,000 at close of July, an increase of 500,000 bales, linters not included. At the corresponding time last year the indicated yield, exclusive of linters, was 11,800,000 bales.

In the meantime general rains have occured in Texas, breaking one of the longest drouths in that state on record, and while the precipitation came too late to be of material benefit to the plant in that state, the breaking of the drouth had a bearish effect on sentiment.

While the prospects for a larger crop and the breaking of the drouth in Texas had a depressing influence on values, the greatest weakness in the market was due to the anxiousness of farmers in the eastern half of the belt, where the crop outlook is much better than one year ago, to obtain the high prices prevailing. One hundred dollars per bale was something that Southern farmers have not secured at the opening of the season for many years past, and the temptation was probably too great for the smaller of farmers to resist, hence they sold as fast as the cotton was ginned.

Now that the market is down to about the 20 cent level in the interior, it is likely that the desire to sell will not be so great, and it is probable that spinners will buy more freely at the decline. In Texas, where there is a crop failure in many districts, farmers are discouraged owing to the decline, and rather than sell at the lower levels, some are hauling their cotton back home.

It is possible that a very urgent demand for export may be witnessed before the expiration of this month, as license requirements on export cotton have been postponed until October 1st, and in order to avoid delay in shipments after this month, which may come of red tape regulations, foreigners are likely to take advantage of the opportunity presented to make large shipments to Europe.

Considering the high ocean rates, high cost of cotton and the claim of the scarcity of tonnage, exports compare favorably with shipments last year; thus far this season, or since August 1st, 417,000 bales vs. 487,000.

Cotton is in a strong position statistically. According to the U. S. Census Bureau the world's production of commercial cotton last year, not including linters in the United States, was only 18,365,000 bales, year before last 18,559,000 while the consumption, on the same basis, was 20,180,000 last season, season before last 21,011,000. In other words the world's production the past two years was only 36,924,000 bales, whereas consumption for the same period was 41,191,000, or 4,167,000 bales in excess of the production.

According to Secretary Hester of the New Orleans Cotton Exchange, the world's visible supply of American cotton to-day is only 1,328,000 bales, last year 1,932,000, year before last 2,620,000, of which 673,000 was in the United States, last year 791,000, year before 1,146,000, in Europe and afloat 653,000, last year 1,141,000, year before last 1,474,000, of which Liverpool is credited with only 296,000, last year 642,000 and 939,000 year before last.

The last goverment report, linters considered, points to a commercial crop of about 14,000,000 bales. The world will likely need a commercial crop of 14,000,000 bales this season even if the war continues another year. Therefore, indications are that spinners will not be any better off this year as regards supplies than they were last season.

As prices now are nearly as low as the average price for the past season, which was 18.41 for middling, and about 7 cents lower than the high of last season, we favor buying for future requirements, for while the market may work lower temporarily, higher prices are probable eventually, especially if anything serious should happen to the crop in the Mississippi valley states or South Atlantic section.

The Yarn Market.

Government business continues to be the chief factor in the yarn market. Most yarn dealers reported the month of August as being an unusually dull one and September opened up in much the same manner. The indications recorded in these columns last month have come to pass and the cotton market has broken much below the bull prices of the past few months. Even the fateful 20 cent limit where sentiment was supposed to stop the selling failed to hold it at the time of the break.

As indicated in previous letters, the break in the raw staple market will doubtless induce a revision of figures in the yarn market, although these will doubtless break much more slowly than did the raw staple. Much yarn has been sold for future delivery at past and present prices, and it will be some time before serious revisions will be noticeable.

The Philadelphia market reported some inquiries for combed yarns, but not much buying. A light demand for carded weaving yarns was also recorded with prices some softer. Carded knitting yarns continued fairly steady, although some spinners varied in their prices from the average, making a comparatively wide range.

The following quotations from the Philadelphia market will give an idea of the relative position:

Southern Single Skeins.

4s to 8s	37 @38	10s	37 @37½
12s	38½ @39	14s	38½ @39
16s	39 @39½	20s	38 @38½
24s	45½ @46	26s	46 @46½
30s	50 @51		

Southern Single Warps.

8s	38 @38½	10s	37 @37½
12s	38½ @38	14s	38½ @39
16s	39 @39½	20s	37½ @38
26s	46½ @47	30s	57 @58
40s	60 @61		

Carpet and Upholstery Yarns in Skeins.

8-2 slack	38 @38½	9-4 slack	38½ @39
8-3-4 hard twist	33 @34		

Southern Two-Ply Skeins.

8s	38 38½ @	10s	38½ @39
12s	39 @39½	14s	38 @39
16s	39 @39½	20s	38 @38½
24s	46 46½ @	26s	46½ @47
30s	46½ @47	40s	58 @60
50s	78 @80	60s	88 @89

Southern Two-Ply Warps.

8s	38½ @39	10s	39½ @39½
12s	39½ @40	14s	40½ @41
16s	41 @41½	20s	38 @38½
24s	46½ @47	26s	47 @47½
30s	47 @47½	40s	60 @61
50s	80 @81		

Northern Two-Ply Carded Peeler Skeins.

20s	42 @42½	24s	47 @47½
26s	48 @48½	36s	57 @57
40s	65 @66	50s	81 @82

Two-Ply Combed Peeler Skeins.

20s	59 @60	24s	62 @64
30s	70 @72	40s	79 @80
50s	89 @90	60s	96 @1.00
70s	$1.08@1.12	80s	$1.26@1.30

Southern Frame Spun Yarn on Cones.

8s	38 @38½	10s	38½ @39
12s	39 @39½	14s	39½ @40
16s	40½ @41	20s	42½ @43
22s	43½ @44	24s	45½ @46
26s	46½ @47	30s	51 @52
40s	63 @64	30s tying-in	50 @51

Northern Mule Spun Carded Yarn on Cones.

10s	41½ @42	12s	42 @42½
14s	42½ @43	16s	43½ @44
18s	44½ @45	20s	45½ @46
24s	49½ @50	26s	50½ @51
30s	56 @56½	40s	66 @67

Northern Mule Spun Combed Peeler Yarn on Cones.

10s	57 @58	12s	58 @59
14s	59 @60	16s	60 @61
18s	61 @62	20s	62 @63
26s	66 @67	30s	72 @73
36s	75 @76	40s	82 @83

The Sea Island Cotton Situation.

BY CABELL & PEEK, INC.

SEASON 1916-1917.

September 1, 1917.

During the summer of 1916 sea island cotton was sold in considerable volume for fall delivery at varying prices below 30 cents landed for Fancy. The market opened before mills were inclined to make purchases for immediate shipment and it began to appear that there would be a recession below the basis of the forward sales. Speculative buyers then came into the market and promptly advanced prices to a basis of 32 cents landed for Fancy, which was the opening market price for early receipts.

The amount of cotton sold in Septembeer was much greater than in previous seasons. The supply, although moving more rapidly than ever before, was insufficient for the demand. At the end of the month Fancy was quoted at 36 cents landed.

The October movement was unusually heavy. Sales were made at advancing prices, at the close, Fancy being quoted at 43 cents landed.

During November the mills continued to buy heavily. Up to this point sea islands had been selling below Egyptians, but by the end of this month they had reached the same basis, selling at 54½ cents landed for Fancy.

During December the market was comparatively quiet and remained inactive through January. Large business developed early in February, on account of expected trouble in getting Egyptians, due to submarines. Prices were stable at from 52 cents to 54 cents landed for Fancy.

Prices during March advanced to 66 cents landed for Fancy, and by the end of April, Fancy was quoted at 73 cents landed. By this time most of the crop had moved and but little business could be placed except in lots offered by mills for resale.

Throughout the season mills, in their anxiety to buy, were not as discriminative as usual with regard to the grades they could use. Practically all sales were made in round lots, mostly average Extra Choice. There was a good demand for the Low Grades and Off Cottons.

The crop was a high grade one averaging about Extra Choice and proved satisfactory for the requirements of the trade.

The ginners' report shows a crop of 117,544 bales, while the total Into Sight for the season was 115,108 bales. At the beginning of the season estimates pointed to a crop of about 100,000 bales. Favorable weather conditions late in the season increased the actual number of bales in the crop.

At the beginning of the past season there was an available supply in the interior and at the ports of about 5,508 bales. The ginnings for the season amounted to 117,544 bales, giving a total to account for of 123,052 bales. The mills have taken during the season 114,937 bales and at the end of the season there was on hand, in the interior and at the ports, a supply of about 4,044 bales, making a total accounted for of 118,981 bales. This gives a discrepancy of about 4,000 bales, which may be accounted for by a difference in the Jacksonville or interior stocks, a small addition to the Savannah receipts and a larger overland movement than has been reported. There is also the possibility that the ginners' report for Sea Island cotton was too high, as Upland cotton was raised to a considerable extent in some sections of the Sea Island belt. This condition brings about the possibility that the gins, in making their reports, included some of the Upland cotton in their Sea Island figures.

On account of the high prices paid for Sea Island during the past season, there has been a general increase in acreage planted, except in that part of the belt infested with the boll weevil. Reports indicate that the acreage has been increased from 15 per cent to 20 per cent. The crop has been poorly fertilized due to lack of potash and made a late start due to spells of cool weather at planting time. A portion had to be replanted where seed were available. Since early season, weather conditions had been favorable up to recently when the belt was visited by too much rainfall, which has caused considerable damage in some sections. Reports from the Western section of the belt indicate that the boll weevil has already greatly reduced the yield, while in other sections the progress of the crop will be governed by weather conditions from now on. We hardly expect a crop of more than 100,000 bales of the average weight. Reports indicate that the crop is about one week later than last year.

Prices are not yet established for new crop deliveries. We hear of but small business having been placed for such deliveries. Exporters are not inclined to sell ahead while mills are willing to contract, but not at prices on a parity with present ideas of the interior dealers.

SEA ISLAND QUOTATIONS, SEPTEMBER 1, 1917.

	Delivered Domestic Mill Points
Fancy Georgias and Floridas	73 cents
Extra Choice Georgias and Floridas....	72½ cents
Choice Georgias and Floridas.....	72 cents
Extra Fine Georgias and Floridas.....	70 cents
Fine Grades Georgias and Floridas....	68 cents
Lower Grades Georgia's and Floridas...	65 cents

Savannah Stock on hand, 947 bales.

There has been a good inquiry since early August for new crop deliveries but at prices too low to appeal to shippers. They prefer to wait and accumulate stocks of spot cotton before making any offers to mills. Interior dealers are inclined to be bullish on account of the Egyptian situation and are also accumulating stocks before selling. The amount of unsold stock carried over this year is less than last and is firmly held at prices above the probable opening prices for the new crop cotton.

Useful Operation of Autos and Trucks.

BY M. L. PULCHER.

"The greatest need of the country today is increased transportation—of that there is no doubt. This urgent need cannot be met by the curtailment of the legitimate use of automobiles and motor trucks.

"The engagement of America in the war must eventually result in the most careful co-ordination and co-operation between all classes of transportation—this should come just as soon as possible, too.

"But this does not mean, I am sure, that rigid rules as to operation of trucks and automobiles should be put in force unless necessary.

"Manufacturers with a full sense of patriotic duty are the last to want the country's chances of winning the war jeopardized; and they have been the first to suggest and to put into operation a conservation of materials and fuel when found that this was essential to the end sought.

"No one can consider it extravagance or selfishness however, on the part of individuals or firms to purchase and operate for their own use automobiles and trucks. It is well to take a sane and conservative view of things and, by doing everything to help yourself be happy and prosperous, if those pursuits do not impair your country's chances of success, you are rendering a patriotic service.

"There is every indication that business will continue to be good, for the duration of the war and afterwards. This activity all along the line, I know, will be aided by automobile and truck transportation. The use of automobiles by business men—salesmen, engineers—helps to speed up the work. The use of trucks gets the materials on the spot—and hastens delivery of finished products.

"The shortage of freight cars—and the congestion of tracks would have been more nearly a calamity than it has been the past year, if there had been no trucks to facilitate deliveries.

"The efficiency of the truck in both business and war is unquestioned. It is the one big means for the relief of congested shipping. It is doubly valuable to the nation as a means of defense in hauling edibles and munitions for the army. Recent developments have proved the truck the most mobile of all transportation facilities. This is shown by the large number of firms which have established, because of the inadequacy of other means, inter-town communication by truck often making shipments of from 100 to 500 miles by them.

"Another big saving accomplished by trucks is the number of horses that each one releases for the cultivation of crops. As a firm installs a truck in its delivery service several horses, varying in number according to the job, are placed on the market and these are available for farm work.

"Thus the motor driven vehicle has come to mean much to all of us either directly or indirectly. The whole nation acknowledges its superusefulness. It is a fact too, that the majority of autos and trucks are employed usefully. Let us all resolve to use our influence to make them more efficient in the conducting of business and national pursuits. In that way we can help our country to win the war."—*Federal Traffic News.*

National Association Fall Meeting.

The semi-annual meeting of the National Association of Cotton Manufacturers is to be held at Springfield, Mass., on October 18-19-20, the Hotel Kimball being the headquarters. Following is the tentative program as issued by the secretary:

First session, Thursday evening:

Report of Secretary.

Reports of Committees.

Address of President.

Address, "From Cotton Field to Cotton Mill," to be illustrated by moving picture films by Fred Taylor, Cotton Technologist of the Department of Agriculture, Washington, D. C.

Second session, Friday morning:

Address on "Our New Problems," by Theodore E. Burton, former United States Senator from Ohio, and now President of the Merchants' National Bank of New York.

Address on "Co-operation between the Cotton Grower and the Cotton Manufacturer," by E. J. Watson, President of the Southern Cotton Congress and Commissioner of Agriculture from the State of South Carolina.

Friday afternoon will be devoted to social recreation. There will be golf and tennis tournaments, and visits to mills in Springfield and vicinity. Details of these features will be given in the final announcement.

Third session, Friday evening:

It is expected that the principal speaker at the banquet will be Dr. Nicholas Murray Butler, President of Columbia University, New York.

Fourth session, Saturday morning:

Address on "The Dye Situation in America," by I. F. Stone, Vice-President of the National Aniline & Chemical Company, and H. Gardner McKerrow, of Marden, Orth & Hastings.

Report of Resolutions Committee.

Election of members.

General business.

An unusually large attendance is expected to be present.

It is all right to spend your own time as you please, but not your employer's.

COTTON MANUFACTURING.

The Training of Textile Employees.

BY ARTHUR H. GULLIVER.

LOYALTY.

The supreme test of the trained skillful employee is loyalty. This is the quality that makes the labor of the hands and the head a permanent habit not an intermittent occupation.

This attitude is mutual; the concern that uses the laborer must in its own treatment of the workman exercise the same high standard of action; if it demands the best that is in each man it must in return give to him the best that it can give.

Taking this up from the standpoint of the worker the first essential is loyalty to one's own self. Each one of us enters this world with a character and inheritance that is our own, whether one is a hand worker, a master craftsman, or a brain worker; whether the result of the labor is cloth or machines or pictures.

To this possession given to us from our ancestors and insured by our years of association with our fellow men, we owe a debt to all those around us. However much we may increase our skill and the value of the work that results, we have this talent of ours for the benefit of all that are living with us whether they are the family, the neighborhood, or the state to which we owe allegiance.

Let us be sure that this fact is kept constantly before our daily workers, more can be accomplished by encouragement than by censure, whether the one praised or blamed is a boy, a girl, a man or a woman. Perhaps the most serious thought that comes to all of us is the general waste of these personal talents that we see around us in any community where we live. There is no standard of measurement that will fit all the myriad human beings that this world holds. You can no more take a scythe and use it for an axe than you can take an artist and turn him into a motorman. However scurvily "Dame Fortune" uses us there ought to be a standard clearing house in every place where the misfits of occupation should receive the same proper treatment that the wounded and sick do in the well managed hospital.

Until we recognize this universal truth, our working force, be it small or large, will make for waste and not for economy. The facts stated about the training of the worker by studying his mental and physical characteristics, applies in a higher way to our training of them to this loyalty to themselves.

It follows from this that the second kind of loyalty will follow much more easily when the worker understands that his employer recognizes his native ability, whether that be the speed by which he can distance his fellows in placing the machinery, or his skill in knowing instinctively the different styles of yarns and cloths that are needed to make up the order for the customer. If he or she feels that those in authority rely on this native quickness of action, it will serve to blot from their minds the feeling that the overseer is the one that must be feared, and is the one to whom they refer every single item of work that is to be done, knowing that he is a friend, and not an insensate driver.

We must have this higher kind of loyalty if the result of our operations shall be constantly good, if we are to command the continuous patronage of our customers. The man at the switch tower is the one upon whom we are to depend if we are to reach our journey's end in safety. No matter how powerful the locomotive or how skilful the engineer, the mislaid rail or the loose tie will wreck the train. So in our industrial establishments the man who oils the shaft and sweeps the floor is just as important a link in the chain of success as the expert mechanic who erects the dynamo, or starts the engine.

These all bring us to the third degree of loyalty and the one that we hear the most about in these times of fierce competition, and the straining of every nerve to succeed. This loyalty is to the employer's interest, the feeling that the belt that is used or the cotton that is lost affects the worker in the same way as it decreases the profits of the manufacturer. For we must know that the accumulated savings of us all are the only means that we have for the erection of the industrial plant that employs labor in the mass.

If some one does not save the money that he earns, any aggregation of capital is impossible. We look too often on the unfair methods of this accumulation of money, and too little on its beneficent work for the community. There is no defence of injustice, whether of one man to another, or of one man to the mass. But let us not impress this attitude of the injustice of human beings on our workers without having them thoroughly understand that if they as earners do not save the money, as well as the articles which this saved money buys, the erection and operation of the corporation is not possible.

The old method of hand labor for just enough to clothe and house and feed would result now, if we were without the mutual loyalty of the owner to his worker, and the worker to his employer. There is no success without this interdependent loyalty. Whether the mouthpiece of the aggregation of capital be the foreman of the department, the superintendent of the plant, or the owner or owners; let none of them forget that if they require loyalty in the employee, they must give that same quality of loyalty themselves.

Let them make the personal comfort of the worker a prime essential of the daily work; let them feel that poor work is just as surely a result of poor conditions of working, as the slackness of the hand that does it. The little things of daily life are the ones that count. It is not so much that the automobile is magnificent, as that it will run over the road without delay from breaking poorly made parts; it is not so much that the cloth has a perfect feel to the hand, as that each thread is made upon honor, that the strain of wear will not cause one to break here and there.

Let the men that the capitalist employs for the various positions of trust and responsibility be selected from the applicants that either have shown elsewhere their ability to make and keep satisfied employees, or those whose appearance and bearing show them to be in the truest sense *men;*

the kind that are called upon by the neighbors, when there is sickness in the household, or who are selected to decide on the wisest way to restrain the wayward son, or the extravagant daughter.

We have such men around us. Sometimes they occupy small positions, their surroundings are humble, their success so far limited; try them out, you cannot go far wrong, if all their neighbors rely on them. They form the framework of the successes of the manufacturing world. Treat them from their own standpoint; do not try to impress them with the honor that you have to confer, but let them feel that you as a fellow-worker have seen what they have done in a little way, and appreciate its value; that the faithfulness they have shown in the performance of the humble task, has given you the confidence to intrust to them the one of more responsibility.

This attitude of securing such supporters will work wonders in the rank and file of your workmen. Do not misjudge the keenness with which the average human sizes up the actions that take place daily in his sight. There is no surer way of getting an unprejudiced, yet very valuable, judgment of what goes on from day to day than to ask your teamer or your yard hand.

Take the lead that the successful politician in all ages and countries has followed, make yourself solid with the family at home, and you will secure the breadwinner's vote. In a much more constant way will you have the faithful worker by looking from his standpoint at the little daily routine events that make up for him, what we call our life. Do not fail to ask and follow the suggestions that the laborer gives, no matter how they are obtained; from a suggestion box placed for each to put any idea that he have, that would contribute to the saving of either time, labor, or material in carrying out the work of the department; or in the way of a shop meeting that would be held to hear of any changes suggested and from open discussion arrive at the best from all angles to take up and enforce.

Let this method cover not only the handling of the operations necessary for the steady production of the plant, but even go as intimately into the life of the operative and his needs both in and out of the plant. We shall be without question surprised by how carefully even the least seemingly important has formulated from his own standpoint the way that such things look to him or her.

We shall pick up many original ways to save labor, time and material, and may do not a little toward overcoming the friction that accompanies all changes by using the ideas of the employee who is to do the work.

Team work does not only apply to sport, or to war, but may be even better used to accomplish the daily work of all of us by which all the manifold industries that sustain, and benefit humanity are carried forward.

Let us not be too pessimistic as to the future, the same labor problems that were before the builders of the roads of the Romans that have stood almost two thousand years, are ours today. What was accomplished then by forced labor and cruel taskmasters can be much better done now with the assistance of willing, careful, skillful, loyal labor, and the results will be as permanent and will not be the last word of a dead race, but the living daily memorial of what will remain to each of us for comfort, maintenance and protection through our own lives, and will be bequeathed from generation to generation as they follow with the succeeding years.

Design for Fancy Cotton Fabrics.

BY T. WOODHOUSE AND J. IRELAND.

PART THIRTY-EIGHT.

The cloth illustrated in Fig. 171 differs entirely in structure from foregoing examples, but at the same time it is made from white yarns. In the finished cloth there are 102 threads per inch and 76 picks per inch. The construction of the ground is a series of diamonds on a plain weave surface, while the large diamonds for the main figure are

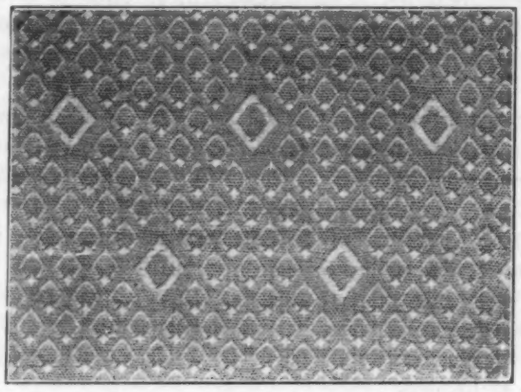


Fig. 171.

distributed in the plain or drop order. All the diamonds are developed by the filling. The complete design is shown in Fig. 172, and occupies 100 threads and 120 picks.

One of the large diamonds appears in the center of the design, while its companion one appears in sections at the four corners. It will be seen that the weft floats over 7 threads to form the figure except, of course, at those places near the top and bottom where the figures tend to points. The normal float for the most part in the diamonds for the ground is one of three; near the upper corner of each ground diamond, however, is a small solid supplementary

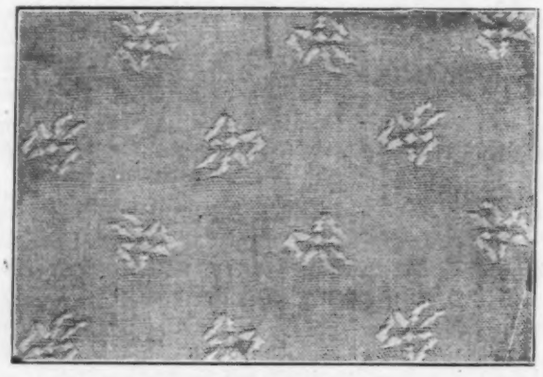


Fig. 173.

diamond with a maximum float of seven. All the remainder of the design is in the plain weave; a larger area of plain surrounds the larger diamonds than in the case of the smaller diamonds. This is also clearly seen in Fig. 171; the arrangement emphasizes the main ornament.

The design is rather unique, but for some tastes contains perhaps too much of the diamond ornamentation. It is possible to draft the design, but even when the design is

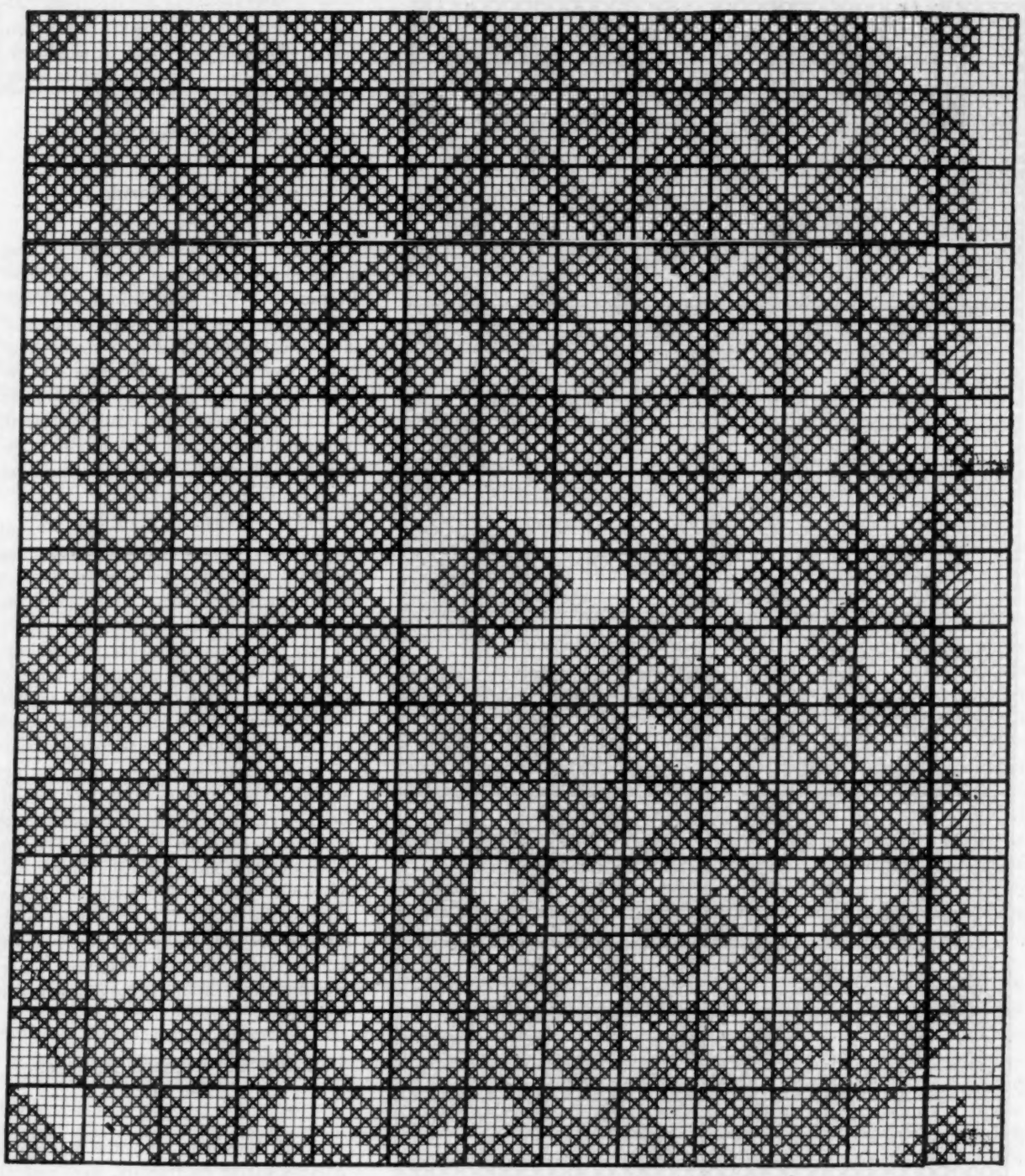


Fig. 172.

reduced to its lowest number, it would occupy too many harnesses for dobby work. It could, however, be woven by any of the ordinary jacquards, 100's, 200's, 300's or 400's. The choice of a new machine would probably depend upon the width of the cloth and the number of harness cords considered to be the most suitable for the work.

Another very effective method of distributing the spots on a design is exemplified in Fig. 173. There are 104 threads of white warp per inch, and 72 picks per inch of white filling. The ornament is obtained by the distribution of the same figure—that of a ribbon tied in the form of a knot or bow—in the ordinary drop pattern order, but the figure points in different ways as is clearly seen on the cloth and in the design in Fig. 174. The arrangement of the bows in the different ways counteracts any tendency to monotony.

It will be seen that one complete unit requires 200 threads and 80 picks, and that two of the figures, the first and the second, are the images of each other with the tails of the bow pointing to the left and right respectively. The third and fourth figures are also images of each other, but these are upside down. Obviously, it would be necessary to weave this pattern in a jacquard loom; a 200's machine would do quite well provided that the number of harness

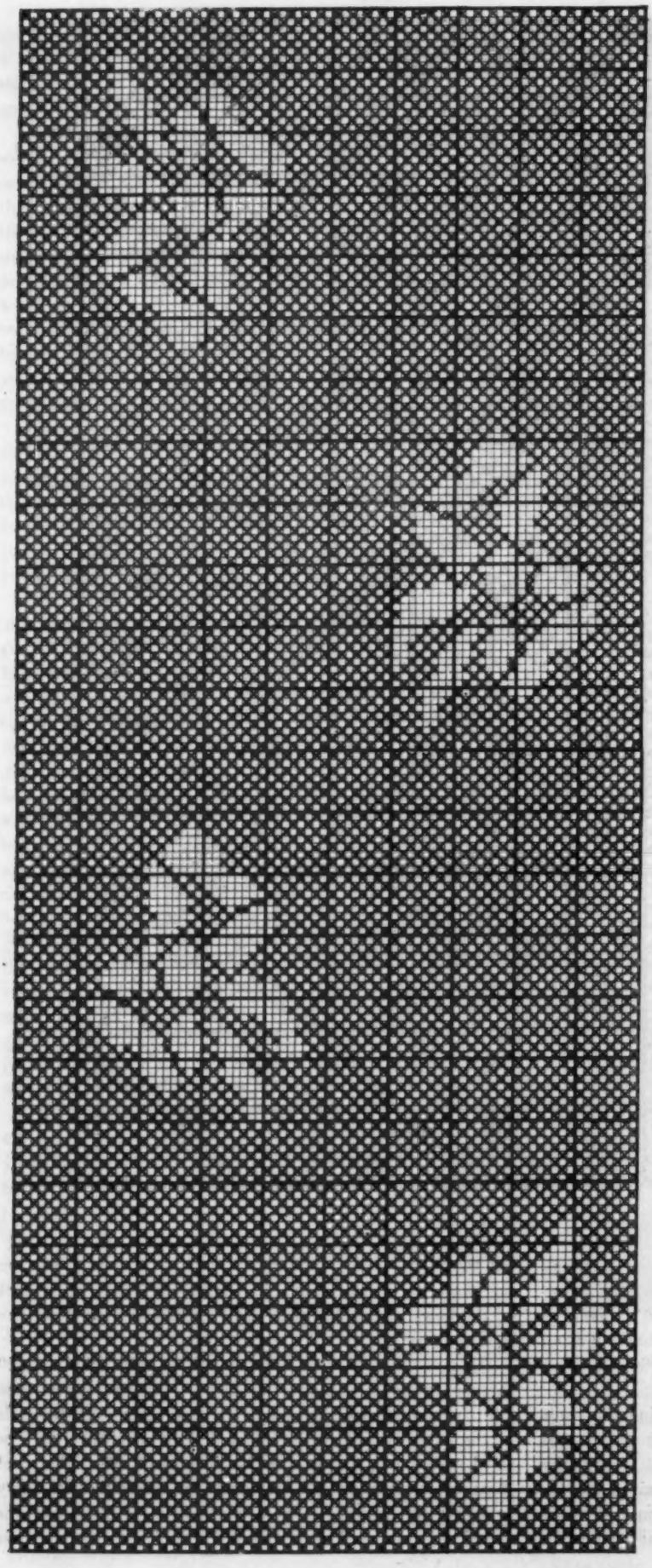


FIG. 174.

cords to each hook was not too great. If there were too many for such a machine, then a 400's machine might be employed, in which case the number of harness cords per hook would evidently be halved.

(To be continued.)

Calcium Chloride.

Calcium chloride is made from natural brines found in Michigan, Ohio, and West Virginia. As the same brines yield salt and bromine, practically every constituent in them is turned to profit. Calcium chloride is used as the circulating fluid in refrigerating plants, in cement concrete, and in automobile gas-engine water jackets to prevent freezing, and in solution is especially valuable in automatic-sprinkler systems and in fire buckets.

The Carbondale Calcium Company at Carbondale, Pa., are placing upon the market a unique metal fire barrel with its equipment of fire pails. These metal fire barrels do away with the unsightly wooden barrels commonly used, they cannot leak, and being painted red are neat in appearance outside, while the inside is covered with a heavy coating of asphaltum, which prevents corrosion. The barrels are made of heavy gauge steel and all joints are welded. They have a capacity of 50 gallons and an equipment of three pails which are hung on hooks on the inside. The contents of this barrel is calcium chloride prepared from "3-C" granulated calcium chloride and water. This combination absolutely prevents leaky and water-soaked barrels, and foul and unsanitary water; also prevents evaporation and troubles by freezing.

In the Government Emergency Service.

T. H. McKinney, Inc., the well known Atlanta wiring contractors, were recently awarded half of the contract at Camp Gordon near Atlanta amounting to between $125,000 and $150,000. This company was also awarded the complete contract for the Government at Camp McClelland near Anniston, Ala., which amounted to around $200,000. This was quite a compliment to the firm of T. H. McKinney, Inc., in that the Government is very particular in awarding such contracts, basing their awards on the past reputation of the contractors and the quickness with which they are capable of installing the equipment.

Dyeing, Bleaching and Finishing.

Scouring or Half Bleach.

BY WILLIAM B. NANSON.

In preparing piece goods for dyers, the extreme requirements to be complied with, are, that the cloth must be thoroughly bottoned, or freed from all impurities which tend to prevent it from being fully absorbent. Also that the cotton must not be overbleached and any part of it thus converted into oxycellulose, as the presence of this substance will cause a lack of uniformity in the application and reception of many of the dyes. The methyl colors have a strong affinity for oxycellulose even if the goods contain the slightest trace, and it is impossible to get a level dying on goods containing it.

Under these conditions, and where whites, or, very light shades are concerned, while the boiling and bottomming, which do not affect the strength of the fibre, must be very thorough, the bleaching (or chemicking) process need not be carried to the extreme limits of safety; while if the color to be dyed be of dark shades, the process may frequently be confined to that of merely scouring, and the chemicking omitted altogether, as for instance in the Turkey-red bleach, or methyl colors where it is of the first importance to avoid all risk of oxycellulose formation.

The significance of thoroughly cleansing the goods before bleaching cannot be overestimated, and the bleacher's task is practically accomplished when the cloth has been thoroughly bottomed so as to be fully prepared for the subsequent bleaching with chlorine or some other oxidizing agent. Any irregulartiy of action interfering with the preliminary stage of decomposing and dissolving the mechanical and natural impurities of the cotton from which the goods are formed can hardly be remedied afterward.

The bleacher, who is ambitious to produce perfect work, must therefore, pay particular attention to the initial process of cleansing and bottoming, as any undue reliance on the subsequent chemicking process will only lead to the formation of oxycellulose and tender goods, and a fictitious and evanescent whiteness which will not stay white, and which can be remedied neither by blueing nor rebleaching.

It occasionally occurs that goods that have been carelessly prepared or bottomed and then overbleached to force the white, may pass muster without detection for some styles of the white trade, as a moderate degree of overbleaching will pass unnoticed and is of little consequence, but with dyed goods it is different, because we require the strength and unifomity, and overbleaching, which is over oxidation, burns the goods and impairs their strength and causes them to take up the dyes unevenly.

The question has arisen whether the present processes of bleaching do not effect any structural difference in the cellulose molecule thus making it possible to suppose that the quality of a bleach might be due to structural rearrangements of the fibre, and in reply to these questions exhaustive experiments have been made and it has been definitely found, that no structural differences were brought in the cellulose mollecule, and that a bleach may be considered to be good when all or most of the nitrogenous and other soluable substances have been removed from the fiber. Thus it may be said, that the impurities which the bleaching process is supposed to remove or decolorize are the non-cellulose constituents of the cotton fiber, and that they are in no apparent chemical union with the molecules of the cellulose itself, and can therefore be removed largely by mechanical manipulation. As they are of an organic nature, it seems possible that they might be rendered soluble and more easily removed by the action of certain enzymes of animal or vegetable orgin, and that the action of any of these biological agencies upon cotton cloth would result in an efficient and perhaps cheaper method of purification of fabrics previous to bleaching with chlorine. Exhaustive experiments have forced the conclusion,—that of all the natural impurities of cotton cloth, only the nitrogen-containing and the ether-soluble substances when insufficiently removed from the cloth previous to the chemicking, cause yellowing of bleached cloth in the steam test or during storage. Also that the nitrogenous substances of the fibres are completely broken down by bacteria, so they can be completely removed from the cloth mechanically. Also that the ether-soluble substances of the cloth are removed by bacterial treatment more effectively than in the ordinary bleaching process, and, that, therefore bacteria may be profitably employed largely as a substitute or at any rate as an accessory to the present method of bottoming cloth preliminary to the actual bleaching with chlorine, with this idea in our mind in the case of bleaching dyed goods we should recommend a preliminary

STEEPING.

The process of steeping has for its object, in addition to what we have already said, the softening and opening up of the fibre preparatory to boiling. The action of the lye used in the boil and the more through and even impregnation of the materials is thus assisted. As we have shown, steeping also aids in the softening and disitegration, —previous to their removal,—of the sizing materials and ingredients coating the fibre, by means of bacterial fermentation. This fermentation must not, however, be too energetic, or the fibres themseves will be attacked. The temperature most favorable to this fermentation process, is 140° F.

The goods should be wet out in a washing machine in water at 140° F (no higher) containing about 2 pounds of Diastofor per 100 gallons of water and plaited down in a water tight bin or tank and left over night covered with the same liquor, or, they may be run through warm water at 140° F and allowed to lie in the bin over night without being covered with liquor, or the Diastafor may be left out, but, the first mentioned proposition is the most thorough and should be followed.

The removal of all starch dressings is much assisted by

this formative process caused by diastafor, for this, when digested with starch at 140 degrees F. converts into soluble carbohydrates which are readily removed by water and it breaks up the nitrogen-containing and ether-soluble impurities of the cloth so that they are more easily removed by subsequent operations.

Steeping is usually allowed to occupy a day, but in practice it is sometimes allowed to extend over a week-end. In this case the liquor is found to get very turbid and to emit a very offensive smell. This is dangerous and indicates that the action is becoming too general; but in the case cited, in which the above conditions obtain, the effects of such 2 1/2 days steeping has not produced sufficient effect to render the goods sensibly inferior to those undergoing the normal treatment of—say, overnight.

In view of the delay and the extra space required, steeping is frequently omitted, and the author has run a great deal of cloth without it, but it pays to steep the goods, they are stronger at the finish, and it saves both alkali and chlorine in the subsequent process, which is quite a consideration at present prices.

After steeping, the goods should be well washed and run into the kier and boiled for 10 hours, under 10 to 15 pounds pressure, using 120 pounds of caustic soda and 60 pounds of soda ash to three tons of goods. After boiling, wash well and sour and wash again and chemic at 1 degree to 1½ degrees Tw. for three to five hours. The chemic may be chloride of lime, but where electricity can be bought for 2 cents to 3 cents per kw., or where the mill has water power, it is cheaper and far better to use hypochlorite of soda made from common salt by electrolytic process. Where this is not available, hypochlorite may be made with liquid chlorine. After chemicking, the goods must be well washed and soured with a mixture of muriatic acid and oil of vitriol standing at 1½ degrees Tw. and then washed and mangled.

If the goods are run through a scutcher geared to a water mangle care must be taken to get the surface speed of the delivery rolls on the scutcher and the surface speed of the mangle rolls exactly alike, for if the mangle rolls outrun the scutcher by but the fraction of an inch the selvage of the cloth will be drawn tight and cracked, especially if the goods are light in weight. Many methods of bleaching without boiling the goods at all have been from time to time suggested, but it has been demonstrated that it requires about four times as much chloride of lime as the ordinary method, and since bleaching powder is, at present prices by far the most expensive material the bleacher uses, and represents a large proportion of the cost of bleaching it would make the process more costly, but as there is a large saving in time and it takes up little room, and requires little initial expense for machinery and plant, in fact, can be conducted (at width) on the ordinary dyehouse machinery, we will give it here:—

(1) Wet out on three box dyeing machine at full width with boiling water in the first, or entering box, wash in cold waater in second box and run in solution of diastafor at 120° F (not more than 140) in third box; wind onto rolls or into trucks and lie over night—cover with wet burlap so the cloth will not dry on the exposed edges.

(2) Run again on three box machine, with plenty of water on first box, and a cold solution of hypochlorite of soda and Turkey red oil standing at 3 degrees Tw. in the second and third boxes. Let the goods stand in this for 5 hours or overnight if necessary until white enough—then wash well. No souring is necessary. If the goods are light or intended only for dress goods, such as dress ducks, buntings, etc., the first operation may be omitted and the goods run full width in the hypochlorite solution, cold in all three boxes and lie over night and wash as before.

For linings or all goods requiring a bright scroopy or bright glazy or silky finish, the first process of steeping overnight in diastafor must be carried out.

The hypochlorite of sodium may be the electrolytic bleach or the one made from chlorine and soda ash, and it must be neutral or slightly alkiline, and is made by adding to 120 gallons of hypochlorite of soda, 2⅛ gallons of Turkey red oil or 23 pounds of Castor oil soap.

The advantages of this style of bleach are:—(1). Suppression of boiling, saving in apparatus, steam, materials and work; (2) Avoiding faults caused by boiling, i. e., raw spots and stains; (3) The fiber is more resilient and less affected, there is no coating or overboiling, no roughening and only a small loss in weight; (4) Quicker production. It is a convenient way to handle odd lots of dress goods or cotton ducks where no regular bleach house is available.

I would say here that while this style of bleach might answer very well for some goods, I would not recommend it for goods for beetling or tentering or for calender finish linings or any goods requiring a stiff or wiry or permanently lustrous finishing or goods for linen finishes, because goods bleached in this manner will not retain their finish permanently but will get soft and sleazy.

Efficient scouring in connection with steeping is the cheapest way of getting rid of the impurities of the cloth, besides being the only method of producing a good white. In bleaching we must always keep in mind that we must get rid of all the matters other than the pure cellulose if we want the cloth to dye up evenly or give a permanent finish. There cannot be any half way position, for if any of the usual operations be stopped after only half achieving their purpose, then the finished product suffers in quality. The presence of residual amounts of wax, protein, or pectic matter cannot increase the quality of the product. It is sometimes thought these impurities might be bleached and left in contact with the cloth, this increasing its weight; but it is found that in time these matters break down and experience has shown us, that these bleached impurities, being collodial in character, are ever changing physically and have an injurious effect on the permanency of the finish.

Probably one of the best methods for scouring goods for dyeing that will answer for any finish to be subsequently given is as follows:—(1) Steep as previously described in diastafor; (2) Sour in muriatic and sulphuric acid at 2 degrees Tw. four hours or overnight if necessary; (3) Wash well into kier and boil with 140 pounds caustic soda, 40 pounds soda ash and 20 pounds soft soap (this is for a three ton kier) boil about 12 to 16 hours at 15 pounds pressure or more. Wash well from this and sour again and wash, and the goods will be fit for most colors, but if for delicate shades they may be chemicked and soured or chemicked and washed if the hypochlorite of soda has been employed instead of chloride of lime.

I would say here, that when goods are soured after chemicking they must be neutralized before dyeing into

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PERMANENT FINISH

This paint has proven its efficiency in the leading textile mills everywhere. May we have an opportunity to prove it to you?

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delicate shades, as it is impossible, practically, to wash out all traces of sour.

I would impress it upon the readers that it is never safe to half bleach cotton goods for dyeing into light shades for the reason that the kier boil is more than likely to stain them. By steeping and boiling once in the kier, as described, they will be bottomed all right, but it will require great care to prevent stains. The kiers must be frequently whitewashed and the top and bottom of the goods well covered with clean burlap, the water used in boiling must be clean and the caustic and soda, being first mixed in a separate tank, must be frequently skimmed on the surface until they boil, as the solid impurities will constantly rise to the top of the liquor from the time the steam is turned on.

The stains so common with a lime boil will never occur with a caustic soda boil if the goods have been previously steeped in diastafor and washed as described in steeping, and the other operations of skimming the liquor and care of kier are properly carried out. I have found that when stains did occur in the caustic soda boil they were due to three things: shortness of liquor; closing the kier before the air had been forced out of it by the hot liquor; or the cloth was badly and unevenly plaited in the kier.

These stains, when they did occur, were easily removed by a subsequent boiling of the fabric in a strong solution of soda ash or sal soda, without any fear of damaging the cloth if only ordinary precautions are taken afterwards.

Where the goods are not steeped in diastafor it will be necessary to boil them twice to reach good results for print cloths or fine finish goods such as jaconets, silesias, corset jeans, sateens, etc. The usual mode of procedure is to boil first in lime, 110 pounds of lime to three tons of cloth. Dissolve the lime to a paste the day before using it. Agitate it into milk of lime and run the goods through it, running the last quarter of the lot through lime water only. Boil for 10 hours at 25 pounds pressure. Run off and wash the goods out and into the soda ash boil. Boil 100 pounds of soda ash in the necessary water to come nearly to the top of the goods and after carefully skimming it run it into the kier from the bottom. Boil again for 10 hours and let off. Wash well from soda boil and sour at 2 degrees Tw. with a mixture of sulphuric and muriatic acid. If the goods are heavy like khaki drills or duck they should be washed from this sour two or three times; duck, however, or khaki drills, should be boiled and bleached at width as previously described.

After washing thoroughly, the goods are ready for dyeing—they are of a light buff color and thoroughly bottomed and scoured and can be dyed in this condition into most of the various shades except a few of the most delicate shades of pinks, sky blues, lemon yellow, etc., without chemicking or further handling. If the goods are required for more delicate shades, they can be chemicked white in hypochlorite of soda and washed up without souring, or, they could be chemicked white in chloride of lime, soured and washed and neutralized in the mangle either with soda or ammonia—the latter being the best.

This last method of souring goods for dyeing is the one that appeals to most bleachers, except for aniline blacks, and Turkey reds, which should have no lime, and ducks and heavy drills which should be bleached by the

diastafor steep, and full width boil on a three box machine as described before. It does not answer to bleach such heavy goods in rope form because they break where they are creased and are hard to straighten out again in the finishing.

It must always be borne in upon the mind of the bleacher or dyer that the saponification and removal of the fats and the destruction of the natural color, which is probably represented in the analysis by the nitrogen content, must precede the real bleaching process. Hence the necessity of the steep in diastafor (or, the boiling in lime in place of it) and the caustic soda boil. If too small a percentage of the fats and color are removed an effect which is not uniform or is not permanent is the result. For instance the cloth will not be uniform in its capacity for absorbing and retaining moisture, it will also lack the capacity for acquiring all the physical properties which should result from the application of the various finishing processes, all of which has a most important bearing on the subsequent calendering, if the goods are intended for any high finish or for stiffenings. All of which means that the goods must be thoroughly bottomed and rendered uniformly absorbent before the chlorine is applied to them and that the chemicking process is wholly unnecessary in certain cases and certain colors as previously explained.

In general, for dyeing, the first consideration must be the absence of all fatty and resinous matters, so that the cloth is highly and uniformly absorbent. Secondly, that it is practically free from oxy-cellulose.

There is a rough test that may be used to determine the efficiency of the scouring and boiling process. This test consists in spotting with water the pieces of dried goods taken from the boiling, or other process and noting the rapidity of the wetting out of the fabric. The test is best performed by cutting a piece about one inch square from the cloth, taking the precaution to have the edges cut clean and not ragged. If the edges are torn or ragged, the capillary on the torn parts is not uniform with that of the clean cut edges, and the water will penetrate into the body of the fabric through the fibres longitudinally instead of transversely, as when the edges are clean and smooth. By placing these pieces of cloth on the surface of water it will be found that those pieces which have been fully and thoroughly boiled out sink instantly, but those which are not so well boiled take a longer time to sink, while pieces which have not been well boiled out float for a long time or do not sink at all.

It sometimes happens that bad penetration is the cause of a great deal of trouble in boiling, this may occur from poor circulation. Poor circulation will occur if the pressure and volume of steam is insufficient, and also by having the goods packed too tightly in the kier. Troubles from this source are among the most serious that can happen, as the goods will appear, when finished, uneven in color; and should it happen afterwards that such goods were to be dyed into any light shade the trouble would be more marked.

It is pretty safe to say that if steam comes steadily from the air pipe on the top of the kier you are having a perfect circulation. If, however, liquor comes instead, circulation has stopped, and steam should be shut off at once to lower the pressure inside the kier, and naturally allow the liquor which is being held in the top of the kier to come to the bottom, when steam is again turned on. This is very important.

Careful plaiting or filling of the kier is also one of the essentials of a good level boil. Sufficient liquor should be in the kier, so that, at no time during the boiling will any of the cloth be uncovered. About 1500 gallons is about right for a three ton kier. A great deal can be said in favor of independent circulation by means of a centrifugal pump. With this arrangement on the kier, regardless of how the steam may vary in the kier, a good circulation of the liquor is always to be had, and with this a thorough penetration is assured.

The goods on entering the kier should be thoroughly wet out before being run in, and when the goods have been boiled the allotted time, the steam should be shut off the kier and it should be immediatey cooled down, while the boiling liquor is being run off. A plentiful supply of water should be entering at the top of the kier while the hot liquor is running off at the bottom. If the goods come in contact with the sides of the hot kier containing any amount of the dirty spent liquor, lye stains are liable to be caused.

I might emphasize at this point the importance of washing thoroughly after the caustic or soda boil, and souring also, even when the goods are for very light shades and have to be chemicked it is better to sour before chemicking, as it not only helps the activity of the chemic but it eradicates most of the stains which may be in the goods.

In closing, and by way of recapitulation, I might say that all cloth for subsequent dyeing and finishing must be so scoured as to be rendered uniform in its capacity for absorbing and retaining moisture, the presence of which in correct proportion has a most important bearing on the effect produced by beetling, tentering, calendering, etc. It must similarly be readily absorbent to the stiffening, weighting and other ingredients used in finishing and in dyeing, and that it must be so scoured and bleached that no conversion of the fibre into oxycellulose shall occur.

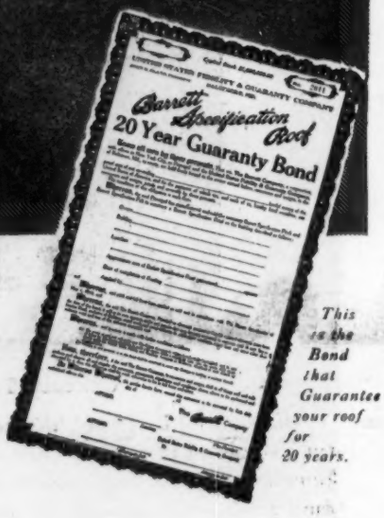
That with regards to heavy goods requiring no finish, such as drills and ducks, the best system is the open width system by which the darker shades, blacks, blues, modes, sages, etc., may be entered dry directly into the dye itself, and the light shades, tans, khaki, chamois, etc., are steeped overnight in diastafor and bleached the following day on three box machine as described; or, if the goods are very motey, they may have to be run through boiling caustic soda at 2 degrees Tw., lie overnight, sour and wash and then bleach.

For all lighter goods the diastafor steeping is indicated, followed by a caustic soda boil and a sour for dark and medium shades and for soft and spongy finishes, but for light shades and lustrous and stiff, permanent finishes this steep, caustic boil, and sour must be followed by a chemic into a full, but not an over, bleach.

If, however, the steeping is omitted it must be replaced by the lime boil followed by the other processes given. Always remember, that though you may be able to get a good color, especially if it is a dark shade, on an unscoured or half scoured piece of cotton cloth, you cannot get a good feel or finish.

Many things come to him who gets after 'em.

Barrett Specification Roof on Niagara River Power-Station of Buffalo General Electric Co., Buffalo, N. Y.



This is the Bond that Guarantees your roof for 20 years.

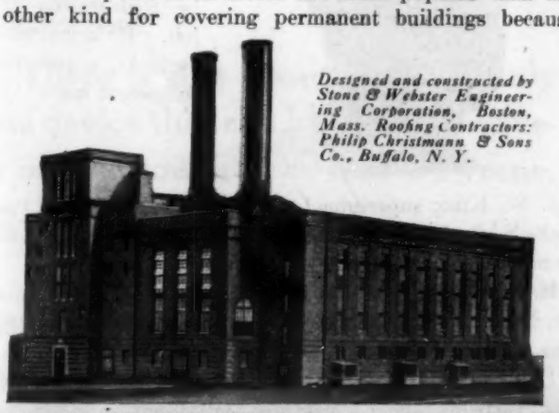
Why This Great Power-Station Carries a Barrett Specification Roof

THE great new Niagara Power-Station at Buffalo is a triumph of modern engineering. Every part of its equipment is designed for the highest possible production at the lowest cost per unit of energy.

Over the huge turbo-generators and other gigantic yet delicate machinery to which the slightest leak might cause serious damage, are 35,000 square feet of Barrett Specification Roof.

Now this is, of course, a building where quality came first and cost second, and the fact that a Barrett Specification Roof *costs less per year of service* than any other permanent roofing counted for very little compared with the fact that it is the *best roofing to be had regardless of price.*

Barrett Specification Roofs are more popular than any other kind for covering permanent buildings because, in addition to costing less per year of service, they require no maintenance, they take the base rate of fire insurance and, further, *they are guaranteed for twenty years,* as follows:



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We are now prepared to give a 20-Year Surety Bond Guaranty on every Barrett Specification Roof of fifty squares and over in all towns in the United States and Canada of 25,000 population and more, *and in smaller places where our Inspection Service is available.*

This Surety Bond will be issued by the United States Fidelity and Guaranty Company of Baltimore and will be furnished by us *without charge.* Our only requirements are that the roofing contractor shall be approved by us and that The Barrett Specification dated May 1, 1916, shall be strictly followed.

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Notes About Men You Know.

GENERAL TYSON.

GENERAL L. D. TYSON, the well known Tennessee textile man, President of the Knoxville Cotton Mills, the Knoxville Spinning Co., the Tennessee Mills, and the East Tennessee Iron and Coal Company, is now serving his country as Brigadier General at Camp Sevier, near Greenville, S. C. General Tyson is a graduate of West Point, from the class of 1883. He resigned from the U. S. Army in 1886 but was appointed by President McKinley, as Colonel of the 6th Immunes, U. S. Volunteer Infantry, in 1898, served in Porto Rico during the Spanish American war and was mustered out from the Federal Service in 1899. He was later Brigadier General and Inspector General on the Tennessee Governor's Staff. He was, also, a member of the House of Representatives in the state of Tennessee in 1903 and was Speaker of that body. In relinquishing his command at home to take command on the field, General Tyson does so at a considerable personal sacrifice. His son, C. McGhee Tyson, is in the aviation service of the Government, at present training at Boston, (Mass.) School of Technology.

M. B. DAVIS has resigned as superintendent of the Clara Mills, Gastonia, N. C., to accept a similar position with the Armstrong Mills, of the same place.

GEORGE CHILSON PHILLIPS, President of the Textile Finishing Machinery Company of Providence, R. I., died on Thursday, August the 16th.

RALPH WEBBER, for a number of years overseer of spinning at the Massachusetts Mills in Georgia, Lindale, Ga., has resigned to accept a position as superintendent with the Clover (S. C.) Manufacturing Company.

C. H. LAND, formerly overseer of spinning at the Massachusetts Mills at Lindale, Ga., returns to the position vacated by Ralph Webber. Mr. Land was also formerly spinner for the Brookside Mills at Knoxville, Tenn.

W. S. LOWE has resigned as superintendent of the Parker Hosiery Mills, Frostburg, Md., and accepted a similar position at the Magnet Mills, Clinton, Tenn.

J. W. CRABB, formerly overseer of carding at the Southern Mfg. Co., Athens, Ga., is now superintendent of the White City Mfg. Co., of the same place.

JOHN CURWEN, formerly with the Meritas Mills, Columbus, Ga., is now located at Newmarket, N. H.

W. LEE SMITH, formerly night overseer at the Clara Mill, has been promoted to superintendent of the Mutual Mill of that place.

A. C. NORRIS has resigned as carder and spinner of the Patterson Mfg. Co., China Grove, N. C., to become superintendent of the Barringer Mfg. Co., Rockwell, N. C.

T. B. FARMER, formerly overseer of spinning at the Victor-Monaghan plant at Greer, S. C., has taken a position as superintendent of the Franklin Mill of the same place.

HARRY A. CARPENTER has resigned his position as superintendent of the Rolin Mfg. Co., at Lincolnton, N. C., to accept a similar position with the Albion Mfg. Co., of Mount Holly, N. C.

W. O. TALLENT has resigned as superintendent of the Glenola Mills, Eufala, Ala., to accept a similar position at the Crawford (Ga.) Mills.

J. M. SHORT, formerly superintendent of the Anna Mills, Kings Mountain, N. C., is now filling a similar position with the Clara Mills, Gastonia, N. C.

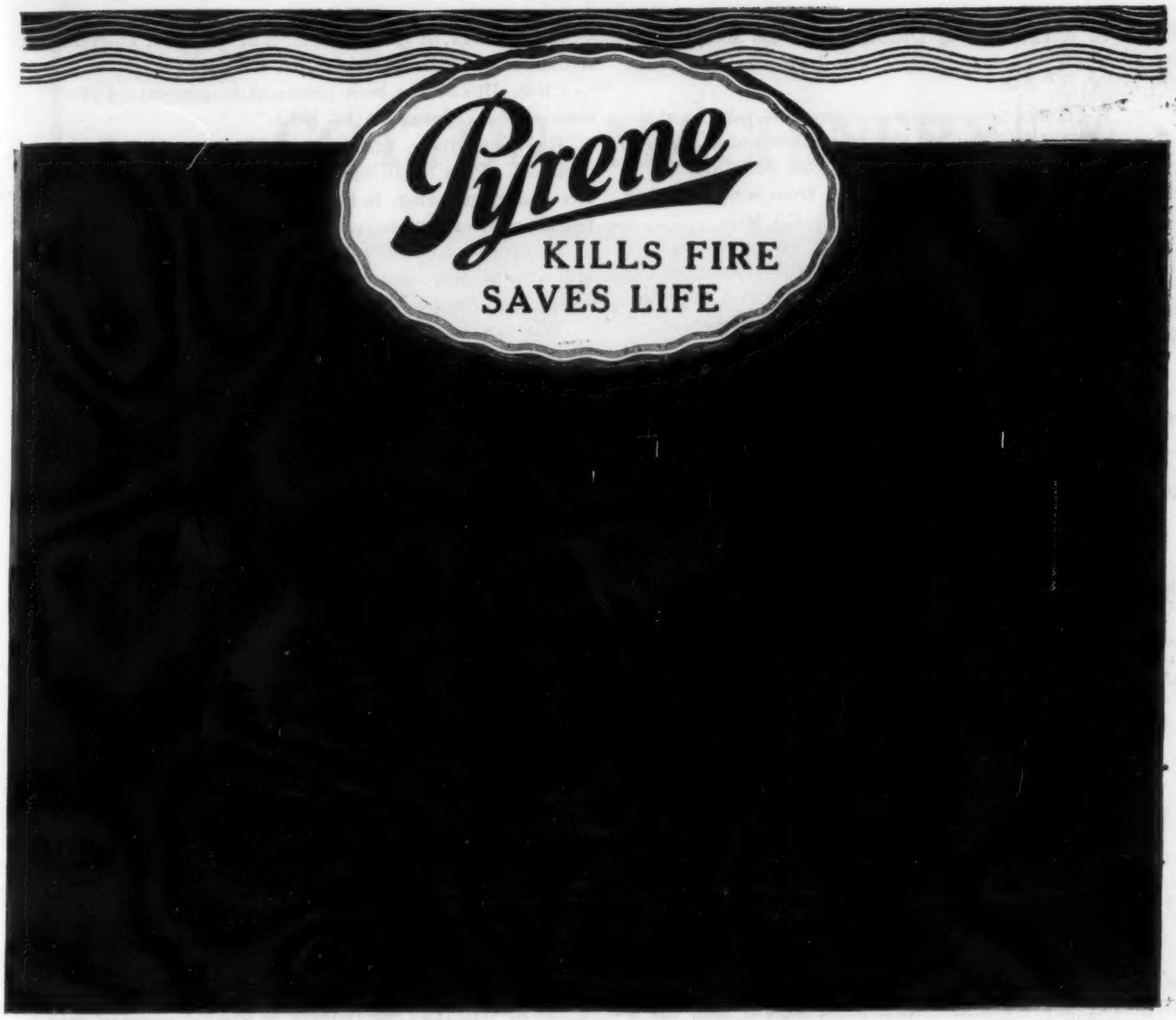
W. B. BRIDGES has been promoted from overseer of carding to assistant superintendent of the Thrift Mill, Paw Creek, N. C.

R. W. VAN TASSEL, master mechanic of the Massachusetts Mills In Georgia, as he appears on the job. He is just what he looks, a forceful, competent man.

J. W. KIDD, superintendent of the Thrift Mill at Paw Creek, N. C., has been made general superintendent of the two mills at Rhodhiss.

H. C. MOORE, formerly with the Spencer Mills, Spindale, N. C., has accepted position as superintendent of the Anna Cotton Mills, Kings Mountain, N. C.

E. C. SANDERS, superintendent of the Defiance Sock Mills, Charlotte, N. C., has been called out with the National Guard.



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They are hard to extinguish. Water is seldom of any avail. The ordinary large fire extinguisher is ineffective.

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Every Appliance for Fire Protection

J. E. WILKINSON, of Drexel, N. C., has accepted the position of superintendent of the Defiance Sock Mills, Charlotte, N. C.

C. N. HARPER has resigned as overseer of weaving at the Brogon Mills, Anderson, S. C., to accept a similar position with the Highland Park Mill No. 3, Charlotte, N. C.

G. B. HILLEY has been promoted from second hand to overseer of spinning at the Seneca (S. C.) Mills.

D. E. TRASK, who has been with the Utica Knitting Co., at Utica, N. Y., for 4½ years, has accepted a position, in charge of the carding and combing, at the Utica Spinning Company of the same city. Mr. Trask is an expert comber man and has not only given perfect satisfaction during his long stay at the Utica Knitting Co., but has also occupied a number of positions of responsibility in the South prior to his acceptance of the Utica position, in all of which he proved very successful.

E. H. GORTON, formerly with the Walcott & Campbell Spinning Co., has accepted a position as overseer of carding with the Utica Knitting Co.

J. L. COOPER, from Easley, S. C., has taken his former position as overseer of carding for the Douglasville Hosiery Co., Douglasville, Ga.

L. W. CARPENTER, from the Atlas Mill, Bessemer City, has become overseer of cloth room for the Gambrill & Melville Mills in the same city.

C. A. BROWER, from Wadesboro, N. C., is now overseer of twisting and warping in the Norwood (N. C.) Cotton Mill.

PICKETT MCCOLLUM has been promoted to second-hand in spinning at the Exposition Mills, Atlanta, Ga.

W. G. STRICKLAND, formerly overseer of twisting and spooling at the Barker Cotton Mills, Mobile, Ala., has accepted a position in the spinning room of the Lauderdale Mills, Meridian, Miss.

CLIFTON CORLEY, general manager of the Necronsett Mills, Inc., Cumberland, N. C., recently spent two weeks in New York, Boston and Providence, where he was looking over and purchasing some additional machinery for his mill.

B. L. GAILLARD, formerly overseer of carding at the Eatonton (Ga.) Cotton Mills, has accepted a position with the Hamburger Mills, Columbus, Ga.

C. R. ROBERTS, formerly overseer of carding at the Watts Mill at Laurens, S. C., has taken a similar position at the Judson Mills, Greenville, S. C.

J. P. ELLER has resigned as overseer of weaving at the Louise Mills, Charlotte, N. C., to accept a similar position at the Aragon Mill, Rock Hill, S. C.

T. W. INGLE, formerly overseer of weaving at the Chadwick Mills, Charlotte, N. C., has accepted a similar position with the Mecklenburg Mills, Charlotte, N. C.

W. M. Love, formerly second hand in spinning at the Kershaw (S. C.) Cotton Mills, has become overseer of spinning at the Hermitage Mills, Camden, S. C.

J. M. ROBINSON has resigned as overseer of weaving at the Mecklenburg Mfg. Co., Charlotte, N. C., to accept a similar position with the Louise Mills of the same place.

L. E. COLVIN, of Chester, S. C., is now overseer of dyeing at the Caraleigh Mills, Raleigh, N. C.

CHAS. DUKES has been promoted to overseer of cloth room at the Tallassee (Ala.) Mills.

HENRY K. DICK, who is connected with the textile department of the North Carolina State College of Agriculture and Engineering, is being congratulated by his many friends on the recent arrival at his home of a fine baby boy.

S. L. ADLER, superintendent of the Magnolia Cotton Mill Co., at Magnolia, Miss., has resigned his position to accept a similar position at Natchez, Miss.

WILLIAM SHAW, of Pittsfield, N. H., has accepted a position as Superintendent of the Jamestown Cotton Mills, Jamestown, N. Y.

HARRY C. MCNAMARA, the popular superintendent and secretary of the Noble-Beveridge Co., at Cedartown, Ga.

T. B. MOORE has resigned as superintendent of the cotton mill of the P. H. Hanes Knitting Co., at Winston-Salem, N. C., to accept a similar position at the Pickett Cotton Mills, High Point, N. C.

A. H. MCCARRELL has resigned as superintendent of the McGee Mfg. Co., Greenville, S. C., to accept a similar position at the Cabarrus Mills, Concord, N. C.

J. G. KING has resigned as superintendent of the Elmira Mills, Burlington, N. C.

J. N. WILLIAMS has resigned as night overseer of carding at the Elizabeth Mills, Charlotte, N. C., to return to his former position as second hand in carding at the Chadwick-Hoskins Mill No. 3, Charlotte.

H. Y. CLARKE has resigned as overseer of carding at the Lois Mills, Douglasville, Ga., and accepted a similar position at the Thatcher Spinning Co., Chattanooga, Tenn.

J. W. JENKINS has resigned as overseer of weaving at the Palmetto (Ga.) Mills, to become overseer of slashing and drawing-in at the Exposition Mills, Atlanta, Ga.

D. W. BROWN has resigned his position with the Maryville (Tenn.) Hosiery Mills and accepted a position as Boss Knitter with the Ashe Hosiery Mills at Knoxville, Tenn. The Ashe Hosiery Mills is a new concern, making infants' half-hose and children's ribbed goods, operating 50 knitting, 38 ribbers and 12 looping machines.

F. T. NEWBERRY has resigned his position at the Lauderdale Miss, Meridian, Miss., to become overseer of weaving at the Selma (Ala.) Mfg. Co.

W. B. PEPPERS has resigned his position at the Exposition Mills, Atlanta, Ga., to become overseer of weaving at the Palmetto (Ga.) Mills.

R. B. HUNT, of Columbus, Ga., has accepted the position of overseer of carding at the Fulton Bag and Cotton Mills, Atlanta, Ga.

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Opening and Picking Machinery

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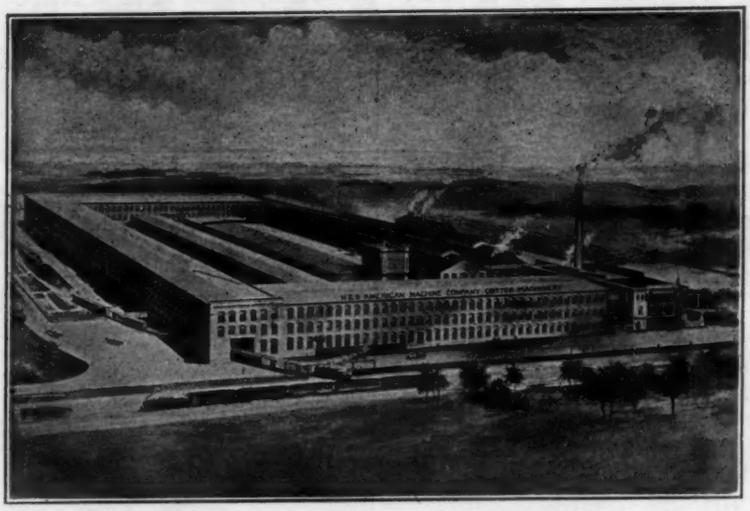


Spinning Room Machinery

Twisters for Wet or Dry Work

With Band or Tape Drive

H. & B. AMERICAN MACHINE COMPANY

PAWTUCKET, R. I.

J. R. FEDERLINE, JR., has resigned as overseer of spinning at the Gainsville (Ga.) Cotton Mills to accept a similar position at the Seneca (S. C.) Cotton Mills.

J. H. CATO has accepted the position of overseer of carding and spinning at the Tifton (Ga.) Mills.

W. T. CLAYTOR, formerly superintendent of the Selma Manufacturing Co., of Selma, Ala., has resigned that position to become superintendent of the Lauderdale Cotton Mills at Meridian, Miss.

R. A. ODOM, formerly overseer of weaving at the Selma Manufacturing Co., Selma, Ala., has resigned his position to accept a similar position with the Lauderdale Cotton Mills at Meridian, Miss.

PRACTICAL BANKING. By O. Howard Wolfe, Assistant Cashier the Philadelphia National Bank. 290 pages. 95 illustrations. Bound in flexible leather. Published by the LaSalle Extension University, Chicago.

The purpose of the book is to set forth in a clear and practical manner the internal operations of a bank. It explains the underlying principles of banking and of the everyday transactions that are common to the various kinds of banks.

In the study of practical banking the method should be from the bottom up—not from the top down. The simple operations should be understood first, and this is the plan adopted. The scope of the treatment is very comprehensive. The minutiae of every department of the modern banking institution are analyzed; their broad relationship to the bank as an entirety is pointed out, and furthermore the broader relationship of the bank to the community at large.

Mr. Wolfe has had a varied experience; as a detail man he is amply capable of discussing practical procedure; as a banking executive he can speak authoritatively on the relation between detail and general banking principles; as former Assistant Educational Director of the American Bankers' Institute he has proved his value as an educator. The book is published by the LaSalle Extension University, of Chicago, as part of the material of their new course in banking.

The Western Electric Company, which, three years ago established a new mark among jobbers by announcing that it would issue its supply catalog every year, once again scores as a pioneer by publishing its 1918 year book in the early fall of 1917.

Two reasons are given in connection with this announcement. The first is that because of the popularity which its year book has attained, the entire supply of 1917 books is already exhausted. In the second place, from many quarters there arose a demand for a book to be published early in September, which could thus be used by buyers in placing their requisitions for fall and winter stocks.

Another feature of the book which is unique among jobbers' electrical supply catalogs is the first section of 16 pages following the index, devoted to a listing of the company's extensive line of printing plates, window displays, lantern slides and other forms of assistance for dealers handling Western Electric appliances.

The book consists in all of 1160 pages and contains more than 50,000 items. It is what it purports to be, a real hand book of electrical supplies.

The Schwartz Automatic Electric Guider.

An automatic electric guider for straight and swing tenter frames, has been brought out by L. H. A. Schwartz & Co., 40 Central Street, Boston, Mass. This apparatus, which has been patented by L. H. A. Schwartz, is extremely simple and works by sliding the wings of the tenter to meet the cloth as it moves from side to side or varies in width, instead of moving the cloth to meet the wings of the tenter. Therefore, the wings keep in constant touch with the selvages, while the cloth runs perfectly free.

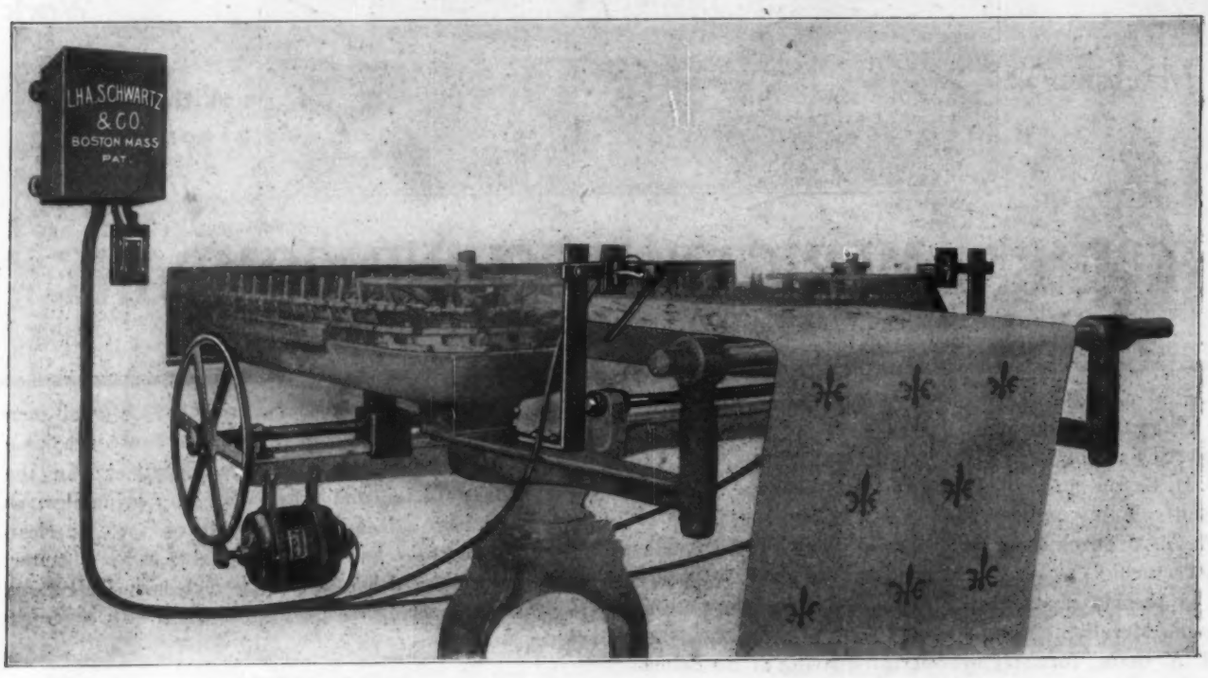
When attaching the device, the screw by which the wings of the tenter frame are moved from side to side is cut in the middle, allowing each wing to act independently of the other. As the device is entirely automatic, the hand wheels, by which the wings are set ordinarily, are removed and gears substituted. Beneath the gears and geared to them are hung small reversible motors of about one-eighth horsepower, which are wire-connected to the feelers on each side of the frame.

From this description it is plain that any variation of the selvages in either direction causes the feeler and the wing to follow the edge of the cloth through the action of the motor, the wing being in close touch with the selvage. With fairly even selvages, the screw by which the wings are moved and the gear driven from the motor are practically at rest and move only slightly one way or the other.

The construction and arrangement of the feelers are, of course, important parts of the electric guider. The feelers may be attached in any place before the clips by the use of the cloth plates, as seen in the illustration, or may be set between two rollers and the cloth plates dispensed with. The blade of the feeler, which is the part that is engaged by the selvage of the cloth, is inclined so that it tends to rest upon the upper surface of the selvage instead of touching the edge at right angles, reducing the tendency to turn the selvage over.

In operation, when the cloth moves outward it presses the blade of the feeler outward, thereby operating the switch to bring about the rotation of the screw in the direction to adjust the wing so as to present the chain in position to receive properly the selvage of the cloth. When the cloth moves inward the feeler follows, with the result that the switch is operated to bring about a reverse of the previous operation so as to shift the wing inward, always keeping the chain in its proper relation with the edge of the cloth so as to engage the selvage

Attention is called by the manufacturers to the following features: there is no sparking whatever at the feelers; the apparatus has few parts, is simple, absolutely reliable and "fool proof," easily and quickly installed, and requires practically no attention; it is sold under guarantee and on approval; and it has no rollers or brushes subject to constant wear and attention, and there are no valves to clog up and get out of order.



SHOWING SCHWARTZ ELECTRIC GUIDER ATTACHED TO A TENTER FRAME.

The guider will handle cloth of any kind, weight or width, and it automatically stops when the end of the piece or a bad tear passes through. The cloth runs absolutely free and unhindered, the same as with feeding by hand. The two fixed contact points on the feeler are adjustable up or down by thumb nuts on the back of the fibre-plate. The closer the contacts are set together the quicker and oftener the wings respond to the movement of the cloth, but the farther apart the contacts can be set consistent with accurate feeding, the better, because of less operation.

DOCKHAM'S JOBBING TRADE AND DEPARTMENT STORE DICECTORY for the United States and Canada. 1917 Edition. 90 pages. Price $2.00. Published by the Dockham Publishing Company, Boston.

This 1917 directory which has just been issued, lists over 4100 buyers, 2.883 of which are jobbers and 1480 department stores. The lines each jobbing firm carries are given in full, arranged by states, cities and firms.

ADMIRALTY
NEW RIVER SMOKELESS COAL

IT isn't the quantity of coal you buy that counts—it's the **heat unit efficiency** of that coal. That's why **ADMIRALTY** is considered the finest steaming coal produced in the United States—the **equal** of the **best** grades of Welsh coal.

ADMIRALTY is a **smokeless** coal that **burns freely.** As the coal burns the ashes drop off, keeping a **red hot layer always on top,** thus insuring the **greatest** amount of heat where it will do the **most** good.

The fact that there are **no clinkers,** means that there will be **less labor** attached to the stoking of fires and removal of ashes.

Write for Interesting Literature

ADMIRALTY is the coal that is used by the world navies and which has been analyzed by the United States Government with the following result:

Moisture 2.6	Vol. Matter 18.9	Fixed Carbon 76.5
Ash 4.5	Sulphur .88	B. T. U. 14,921

The Chesapeake & Ohio Coal & Coke Co.

(Selling Agents for New River Collieries Co.)

EXECUTIVE OFFICE, 120 Broadway, New York City

WESTERN OFFICE
First National Bank Bldg.
Cincinnati, Ohio

SHIPPING OFFICE
Sun, W. Va.
Eccles, W. Va.

TIDEWATER AND EASTERN OFFICE
Board of Trade Building
Norfolk, Va.

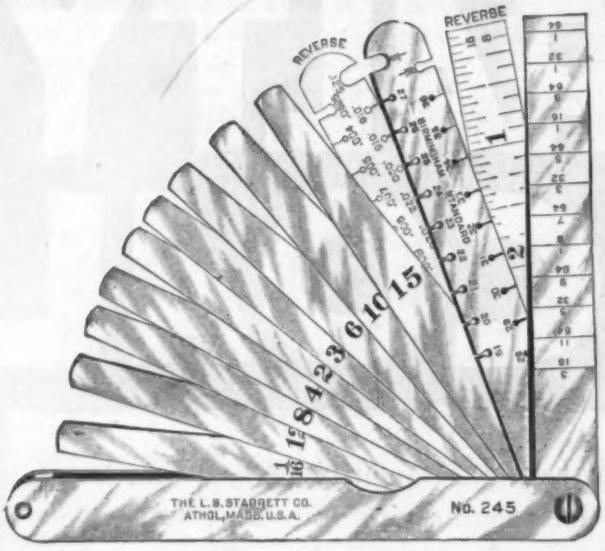
FOREIGN AGENTS

W. H. Newman
Trafalgar Bldgs.,
Northumberland Ave.,
London, S. W.

M. C. Pigott
4 Lloyds Ave.,
London, E. C.

SOUTH AMERICA
Chadwick, Weir & Co., Ltd.
25 De Mayo, 158
Buenos Ayres

Special Cotton Mill Gauge Free—



for a few minutes of your time.

The taper gauge shows the thickness in 64ths to 1/16ths of an inch on one side, and on the reverse side is graduated as a rule three inches of its length, reading in 8ths and 16ths of an inch.

The wire gauge, English Standard, shows on one side sizes numbered from 19 to 36, with two extra slots, one 1/16, the other 1/8 on an inch, and on the other side shows the decimal equivalents expressed in thousandths. This gage has also 9 thickness or feeler gage leaves, approximately 4 inches long, of the following thicknesses: .002, .003, .004, .006, 008, 010, .012, .015 and 1/16th of an inch all folded within the case, which is 4¾ inches long, convenient to handle or to carry in the pocket.

Our Service Department desires the opinions of active mill men on the quality of the work shown in the advertising pages of this issue of COTTON.

We are, therefore, going to give this gauge for the best letter by a mill executive who gives the clearest and most definite reasons why, and in what maner, any certain advertisement is, in his opinion, the best.

Contestants must be mill executives, from overseers to presidents, connected with spinning, weaving, knitting, or finishing plants. The letter must be accompanied by the name, address and official position of the writer in order to be eligible, and must reach this office not later than the first of the month succeeding the date of issue.

The judges will be the Editor of COTTON and the Manager of the Service Department, whose decision will be final. The name of winning contestant will be announced in COTTON'S pages.

Address Contest Department of COTTON, Atlanta, Georgia.

The Advertising Contest.

The writer of the winning letter in the August advertising contest was Walter S. Duckworth, of Post, Texas. The letter follows:

The Winning Letter.

Post, Texas, August 15, 1917.

Editor Cotton:

As I am desirous of having one of the prize gauges shown, I wish to select from the August number of Cotton the advertisement on page 22.

The first thing that attracts attention is the military heading, "Keeping in Step." You know Uncle Sam has in progress 500,000 men, educating them up to this point.

Every successful business man knows that advertising is essential; then why not advertise in the most popular magazines. The higher authorities of our country urge the reading of the Literary Digest. Only a short time ago there appeared a young man before some military officers for examination to enter the training camp; one question that was asked him was, "Give the names of two magazines that publish the most educational and beneficial news." He gave as one the Literary Digest. He afterwards found out that his answer to this question was very satisfactory. The "650,000 intelligent executive readers" is why advertising should be done through a well published magazine.

Yours truly.

Walter S. Duckworth, Overseer Finishing.
Postex Cotton Mills, Post, Texas.

Two "Worth While" Books.

The Westinghouse Lamp Co., 165 Broadway, New York City, have developed a very original plan for the education of possible customers to the proper value of good lighting by the publication of two very interesting copyrighted books that will appeal to the plant manager.

One of these books is entitled "Increasing and Improving Production," by R. T. Kent. Mr. Kent needs no introduction to any business or mechanical man, as since his graduation from Stevens Institute in 1902, he has been doing industrial efficiency work in many plants and under many conditions. Therefore, he is well qualified to offer some new ideas on increasing and improving production, which he does in this interesting book just published by the Westinghouse Lamp Company.

The second book is entitled "Successful Industrial Management," and is by Harry Franklin Porter, a recognized authority on management and formerly connected with the editorial staff of such magazines as "System," "Factory," and "Industrial Management." In the last chapter of this book Mr. Porter says: "In tracing down the sources of inefficiency, one comes again and again to poor lighting as a leading cause." In publishing this book it has been the aim of the Westinghouse Lamp Co., to show industrial readers why lighting is such an important factor in the manufacturing plant of today.

These books will doubtless be sent to any mill superintendent or manager upon application to the Westinghouse Lamp Co., 165 Broadway, New York City.

How Other Men Manage

Practical Discussions by Cotton's Readers on all varieties of Mill Subjects

Answering the Comber Questions.

Editor Cotton:

Answering the Comber questions in the September number of Cotton

> "If we 'heavy up' on the breaker drawing and doublers, would it make the laps so heavy that the combers would run badly? If so, what timings or settings should be changed to overcome this difficulty and still get the same weight per yard off the combers?"

If the combers are in good mechanical condition and doing good work when running on a light or medium weight lap, an increase in the weight of lap would not materially affect the running of the work. This increase, though, must be within reasonable limits, which depend upon the grade and staple of the cotton being combed as well as on the weight of the lap. If a ribbon lap machine is used with the sliver lap machine, a slightly heavier lap could be successfully run than if this machine was eliminated. This, of course, is because the use of the ribbon lap machine produces a lap that is evener and contains less parallel streaks where the slivers have not become thoroughly intermingled with each other.

When the weight of the lap is increased, the only change necessary about the comber to get the same weight per yard off the machine, would be to increase the draft between the feed roll and the table calender roll.

> "In a recent experience of this character, making the drawing and doubling heavier seemed to make the ends break in the pan back of the table calender rolls."

Without further information, it appears certain that the increase in the weight of the lap is the cause of the web breaking in the pan. The lap has been increased in weight until it is excessive and the sheet of cotton fed for the cylinder to act upon is so thick that the leather detaching roll cannot easily and evenly remove the fringe after the half-lap has passed through it. The fringe is so thick that the detaching roll does not get a sufficent grip on it and the result is that irregular tufts are pulled away and bad piecing is sure to follow which breaks in the pan.

The remedy is obvious. The limit in the weight of the comber lap has been overstepped and the weight of the lap must be reduced. However, there is a way to prevent the web from breaking in the pan when a heavy lap is used. Increase the weight or spring tension on the leather detaching roll. This will improve the evenness of the detached fringe and make a better piecing, but it will produce excessive wear on the detaching roll and the detaching roll brass bushings. It is a makeshift at best.

In the present instance, it appears that the combers are turning off a suitable production but the drawing and sliver lap machines are pushed to keep up. Making the drawing and laps heavier would help out these machines but the results on the comber show that this change is unsatisfactory. If something of this sort must be done, then "speed up" the drawing and sliver lap processes rather than "heavy up" to get the necessary production. Of the three machines, favor the comber, which in this instance, even before increasing the weight of the lap, must be running close to the limit.

Rogege (Conn.)

Editor Cotton:

Replying to "Darhol." I should advise him not to use a lap over 460 grains per yard. He does not mention the style of combers, so it is not advisable to give definite settings. One comber room I know of is runing on a 460 grain lap, producing a 60 grain silver and the production over a six months period has averaged 7000 pounds per 60 hour week for each comber. The speed is 120 nips per minute running on 1 1/16 inch peeler cotton.

Increasing the weight on the leather detaching roll may help but this has a tendency to deflect the roller and long waste is made in the middle of the lap.

The timing of the detaching mechanism should be watched to see if the steel detaching roll starts forward too soon or too late. If roll is too late in starting, a long piecing is made and the fibers have a knotty, curled appearance and web is very cloudy. If the roll is too early, the piecing is too short and the web has thick and thin streaks and the sliver produced is cut.

Attention to these points may help "Darhol" to use a heavy lap although a heavy lap is not considered good practice.

Kid (N. C.)

Editor Cotton:

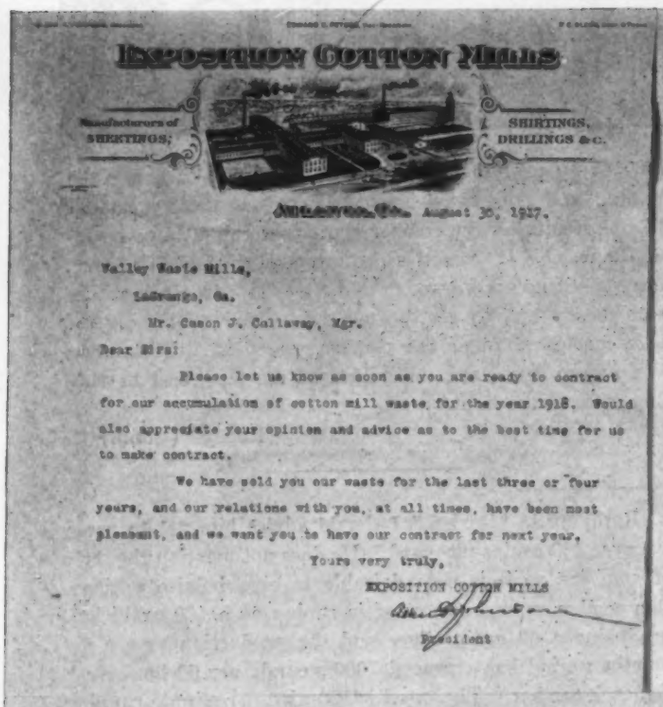
If "Darhol (Conn.)," had stated the width of his comber laps, and the grains per yard, it would be much easier to decide if he could "heavy up" on preparatory machinery, and get good results on the combers.

Does he want to "heavy up" on his drawings and doublers to cover a shortage of laps, or is he endeavoring to increase the amount of combed cotton by using a heavier lap?

If he wants to "heavy up" and get the same weight per yard of combed sliver and the same poundage, the only remedy he has is by changing the feed gear to feed a less amount of cotton per nip, which would necessitate retiming the detaching rolls, (top and bottom) for the piecing and retiming the feed for the percentage of waste. Changing the angle of the knife and top comb two degrees more will often help considerably.

What seems to be more probable, is that he desires to

8 Letters That Show You Where



EXPOSITION COTTON MILLS

Manufacturers of SHEETINGS, SHIRTINGS, DRILLINGS &c.

Atlanta, Ga. August 30, 1917.

Valley Waste Mills,
LaGrange, Ga.

Mr. Cason J. Calloway, Mgr.

Dear Sirs:

Please let us know as soon as you are ready to contract for our accumulation of cotton mill waste for the year 1918. Would also appreciate your opinion and advice as to the best time for us to make contract.

We have sold you our waste for the last three or four years, and our relations with you, at all times, have been most pleasant, and we want you to have our contract for next year.

Yours very truly,

EXPOSITION COTTON MILLS

President

QUOTATIONS SUBJECT TO CHANGE WITHOUT NOTICE

Swift Spinning Mills

Yarns

Columbus, Ga. Aug. 25, 1917.

Mr. Cason J. Calloway, Mgr.,
Valley Waste Mills,
La Grange, Ga.

Dear Mr. Calloway:-

We acknowledge receipt of your letter of the 22nd, and if at any time you are figuring with any one that contemplates selling you their out put of waste and they want any recommendations as to the moral and financial responsibility of your Company, which we believe to be unquestionable, we would be glad to have you refer them to us.

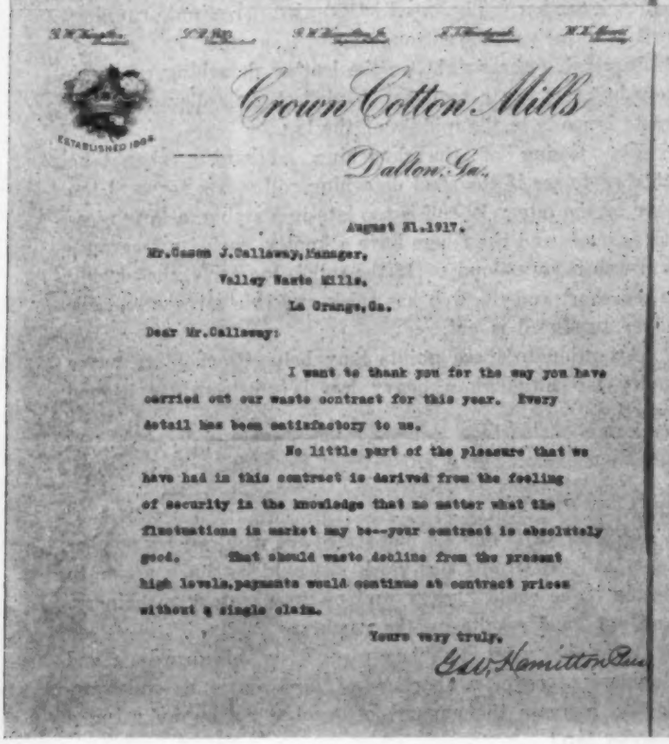
Knowing the officiars of your mills personally, all of whom we have a very high record for, we are confident that any one selling you waste could always count on your taking same regardless of the course of the market.

Our relations with your good Company have certainly always been very satisfactory and pleasant.

Yours truly.

SWIFT SPINNING MILLS.

GJH.L.



Crown Cotton Mills

ESTABLISHED 1884

Dalton, Ga.

August 31.1917.

Mr.Cason J.Calloway,Manager,
Valley Waste Mills,
La Grange,Ga.

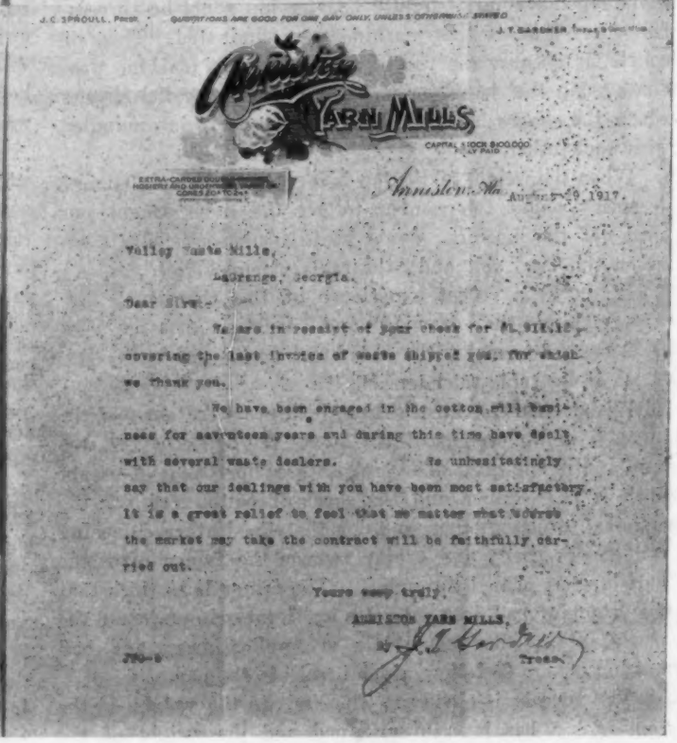
Dear Mr.Calloway:

I want to thank you for the way you have carried out our waste contract for this year. Every detail has been satisfactory to us.

No little part of the pleasure that we have had in this contract is derived from the feeling of security in the knowledge that no matter what the fluctuations in market may be--your contract is absolutely good. That should waste decline from the present high levels,payments would continue at contract prices without a single claim.

Yours very truly.

C.W.Hamilton Pres.



J.C. SPROULL, Pres. QUOTATIONS ARE GOOD FOR ONE DAY ONLY, UNLESS OTHERWISE STATED J.T. GARDNER

Anniston Yarn Mills

CAPITAL STOCK $100,000 ALL PAID

Anniston, Ala. August 29, 1917.

Valley Waste Mills,
LaGrange, Georgia.

Dear Sirs:-

We are in receipt of your check for $1,916.15 covering the last invoice of waste shipped you, for which we thank you.

We have been engaged in the cotton mill business for seventeen years and during this time have dealt with several waste dealers. We unhesitatingly say that our dealings with you have been most satisfactory. It is a great relief to feel that no matter what course the market may take the contract will be faithfully carried out.

Yours very truly,

ANNISTON YARN MILLS,

By J.T. Gardner

Treas.

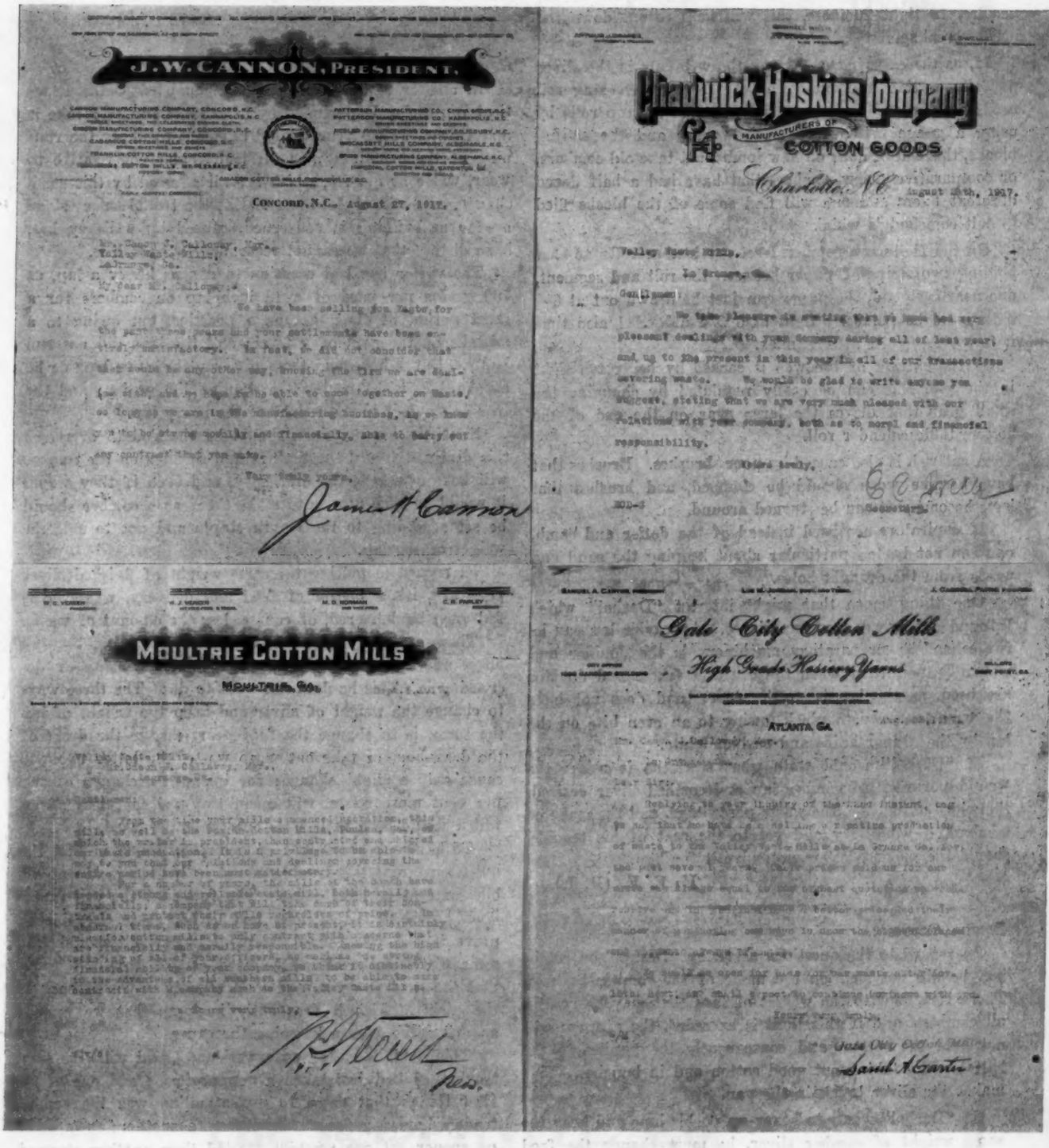
JTG-B

WE PURCHASE EVERY GRADE OF WASTE

HILLSIDE COTTON MILLS, OWNERS

VALLEY WASTE MILLS,

To Sell Waste With Security



THAT IS PRODUCED IN A COTTON MILL

CASON J. CALLAWAY, ASST. TREAS. & MGR.

LAGRANGE, GEORGIA.

run a heavier lap to get a larger poundage of combed sliver, this can be done, and the weight of the sliver regulated in the draw box. Allow a little larger angle on the nipper knife and top comb; have the cushion plate set to the needles, 19 tight 20 loose, this will help to cut down the needle breakage.

If, as the experiment showed, the web cuts in the sliver pan, the setting and timing of the leather detaching roll needs looking at. It is poor policy to set the top rolls by using a guage between the roll bushing and the setting blocks, this can be done on new combs, but take old combers, or comparatively new combers that have had a half dozen different fixers and one will find some of the blocks filed to suit somebody's whim.

On the Heilmann comber I set my leather rolls, so that holding two strips of paper between the roll and segment, one near each end, the paper can just be drawn out at 6½ index, and be perfectly tight at 6 3/4 index. I also time it to leave the bite at 9¾ index.

If the cutting of the web is caused by being too tight in the pan this can be easily regulated by changing the small gear that drives the large gear on the end of the bottom table calender roll.

A cut web is also caused by poor brushes. Brushes that have become worn should be changed, and brushes that have become soft can be turned around.

If aspirators are used instead of the doffer and comb, one can not be too particular about keeping the sand and waste from the draught holes.

One thing more that might interest "Darhol" which I found out by my own experience. A heavier lap can be run when the preparatory machinery is the doubler and ribbon lapper, than when the drawing frame and doubler are used, as the lap is much evener, and does not have the same tendency to pluck, owing to an even bite on the lap by the nipper knife and cushion plate.

If "Darhol" would state what stock he is using, the weight per yard of comber lap and combed sliver desired. the width of the lap, the waste percentage, and the make of combers, I would try and get to the seat of his trouble, should the present letters not solve it for him.

H. E. F. (R. I.)

EDITOR COTTON:

In regard to the questions asked by "Darhol" on combing, he did not mention the name of the comber he uses. There is a limit to the weight of laps that may be run on all combers, and if this limit is exceeded, the nippers will not hold the cotton, and consequently the needles in the half lap are taking out good cotton and in bunches. This makes the sliver break in the pan.

If "Darhol" wants to heavy-up on his laps and keep the same weight of comber sliver, he must change the feed gear to a smaller one. This will not feed so heavy, and will overcome the heavying up of the laps. However, there is a limit to the size of feed gear and when he gets on the smallest gear he can he has gone the limit. Then if the ends run bunchy and bad, it will be necessary to lighten up on the laps.

If I knew the name of the machine and the class of work he was running, I could tell much better how to overcome his difficulty.

The approximate weights for the different combers are as follows: Nasmith 650 grain lap; Whitin 600 grain lap (550 is better); Hetherington and Dobson & Barlow 300 grain lap (these two latter makes are old style).

Stark (New York).

EDITOR COTTON:

In answer to the two questions submitted to the Practical Discussion Department by "Darhol, Conn." I take it that Darhol's term "run badly" is meant to imply the running of the machines with difficulty, and not relative to wear, waste or quality, which are all affected by this same change, as I will explain later. But the troublesome stage as far as running is concerned, caused by a heavy lap, is so distant that we cannot reasonably approach it.

The writer has had occasion to run as heavy a lap, as 700 grains per yard of a 12 inch lap on combers for a short period of time, not as a practice, but owing to a mistake on the part of a fixer; and the laps did not run badly. But I have had them give me the same trouble he speaks of, with as light a lap as 490 grains; and the trouble was not in the weight of the heavy lap.

No timings or settings should be changed to overcome this difficulty. All the timings and settings on the comber will not overcome the difficulty, and even if they would it would be very unwise to make them, as a comber should be set according to the length staple and not to suit the weight of the lap.

In regard to getting the same weight of finished sliver per yard, it's a matter of feed and delivery, whatever is fed must be delivered, of course, less the amount of waste.

There are many ways of setting a comber, but they all affect the weight of the sliver, either increasing or decreasing it. This he does not want to do: The three ways to change the weight of sliver and keep the weight of lap the same, is to change the feed gear, change the draft of the draw-box, or take out more waste, the latter two will cause only a slight change; for instance a change of two per cent more waste, will mean two per cent less sliver, which would be a little over one grain per yard.

To be frank about it, I do not really think, in fact I'm quite sure, that this trouble is not in his heavy lap at all, but some other local cause. The fact that the evil makes itself known at the calender roll, or anywhere else, doesn't prove that it was caused there. If "Darhol" should find some dirty black oil in the card can, it wouldn't prove that the card made it, and it is sometimes traced back to the picker. Also it frequently happens that we remedy an evil without even knowing the cause.

This reminds me of an experience I had with the same trouble. I had just taken a new position; and one of the first things that came to my attention was the comber tenders hurrying from one comber to another; they would no sooner get one machine started than another stopped. Many of them left their jobs the first day I started. So I investigated and I found the ends cutting off in the puff-pan, and getting stuck in the trumpet of the pan, mostly in the latter, so I made my first mistake by having the hole in the trumpet bored out larger. After they were all done, I deceived myself into thinking for a few days, that they were much better. But they were not, and I tried everything I could think of, and had to give it up. The combers were running worse than ever for about two days. Then as I was walk-

This paper was awarded first place in the contest. Other papers will follow.

WHY TEXTILE MILLS SHOULD USE SOFT WATER.

The writer acts in a managerial capacity for a plant that originally started about twelve years ago with the purchase of a worn out narrow fabric and ribbon plant.

With the passing of time, the business prospered and one department after another was added until today it combines under one management, all the operations necessary for the manufacture of yarn and piece-dyed narrow woven fabrics of all silk and silk and cotton and nationally known brand of high-grade silk hosiery.

Mention of these facts is made for the reason that the results and opinions set forth below cover almost the entire range of textile energies into which soft water enters, excepting the treatment of wool, which being an animal fibre, should respond in a similar manner to silk and also linen which to a great degree acts under textile treatment, the same as cotton.

It is an interesting fact that long before we performed the various preparatory operations in our own mill, we favored certain yarn spinners and processors, silk throwsters and dyers, who, **we subsequently learned were using soft water.**

The use of soft water in the customary "soaking bath" for silk eliminated uneven results, sticky and matted skeins, which immediately improved production in the Winding, Doubling, Coneing and Warping Departments.

Looms mounted with warps made of soft-water-soaked raw silk showed such an improvement in tenacity and elasticity that increased yardage immediately resulted and was later further increased by speeding up.

In the Knitting Department, soft-water-soaked gummed silk resulted in a reduction of press-offs and seconds and the eradication of split stitches, half stitches and bad selvedges. The finished goods showed a smooth, satiny face that recently was an exclusive characteristic of our higher-priced ingrain silk hosiery.

In the degummage of silk, soft water saved soap, shortened the time of operation and almost did away entirely with skimming. Previous to its use, the boil-off caused the soap to unite with the hard matters in the water, forming an insoluble curd, which if not removed, resulted in streaky, spotty and dull dyeings.

In the dyehouse, peroxide and chloride of lime bleachings made with soft water resulted in a decided saving of chemicals. The silk, cotton and piece goods so processed coming through with a considerably improved feel. Basic, direct and acid dyestuff dissolved without a residue, whereas formerly insoluble lumps caused streaks and spots in the goods which had then to be stripped or redyed at an additional cost. A saving of dye wares was noted. Acid colors gave much more even results and dyeing formulas could be counted upon to act with some degree of regularity. In tin weighting and tannic acid resist dyeing, sufficient savings and high-priced chemicals alone were made to make soft water a necessity. Finished dyeings, after its use, showed greater luster of fibre besides depth, brilliancy and evenness of color and an improved feel. The final rinsings in soft water enabled us to reduce to a considerable extent, the quantity of sulphonated oil and other softeners that were formerly necessary to obtain the required hand.

The results above described, having been obtained in a district where the water contains normally only 3° of hardness, should apply with doubled and tripled force in mills located where the water is unusually hard.

It is an undoubted fact that there are a great many textile mills suffering from difficulties caused by hard water without knowing just where the trouble lies and in these mills, the modern treatment should be of especial interest.

GOTHAM SILK HOSIERY CO., INC.
By Milton Weil, General Manager.

THE world is today demanding Democracy as the form of government best adapted to conserve the greatest good to the governed.

So the textile world is awakening to the necessity of water 100% soft for the conservation of supplies and the production of a better product in their mills.

Proof of this is had when looking over the splendid arguments presented in our recent contest for a $1,000. REFINITE Water Softener.

Articles were presented from Ontario and Quebec, Canada, also from California, Arkansas, Wisconsin, Indiana, Kentucky, Ohio, Pennsylvania, New York and Massachusetts.

Editors, Master Dyers, Professors, Superintendents, Secretaries, Foremen, Chief Engineers and Presidents of Textile Mills contributed liberally from their fund of experience and knowledge.

The REFINITE Company desires to express their heart-felt thanks for the splendid response given, and will endeavor to present the arguments received in a booklet that will be of great value to the Textile Industry.

Copies of the best three papers will be sent on request together with full information as to the cost of operating Nature's Own Remedy for "Hard Water Ills."

The REFINITE Co.

REGISTERED U.S. PATENT OFFICE TRADE MARK

Incorporated

514 Farnam Bldg., Omaha, Neb.

Southern Representative
EDWIN S. MEYERS
904 Fourth National Bank Bldg.
ATLANTA, GA.

Eastern Representative
A. W. BUHLMANN
200 Fifth Avenue
NEW YORK CITY

Western Representative
THE W. J. HUGHES CO.
509 Baker-Detwiler Bldg.
LOS ANGELES, CAL.

ing through the comber alleys, I heard a hard pounding on one of the machines that seemed to run the worst, upon investigating I found it to be caused by a large actuating cam having run dry of oil and grease, and a flat place worn on it. I had it taken off and brought to the machine shop, where they rebored the groove to a larger size, and putting in a larger cam ball, we put the shaft back, started the machine up, and it run apparently as good as a new one. It wasn't long before I had the shop working overtime recutting cams, which will overcome the difficulty for a short time, but they will never give as good work as a new cam, and should be renewed at the first opportunity.

In explaining how a worn actuating cam will cause the ends to keep cutting in the puff-pan in back of the table calender rolls, it would be well to say that the most important duty of the comber, next to that of combing the impurities and short stock, is the obtaining of a good strong piecing or overlapping of the head of one fiber and the tail of another. The greater the overlap—the stronger the piecing, which is performed by the leather roll and segment, gripping the heads of the newly combed fibers, and laying them on the tails of those previously combed; also the fact that the pieced web does not have a uniform tension upon it, but is drawn tight and then slack, as it is broken and pieced about 135 times a minute, it becomes weaker as it goes along.

The detaching roll is driven by the cam roll, revolving around the cam, whose working surface or circumference governs the surface distance of the forward and backward movement of the roll. Now it is readily seen that if the cam wears (which it does, and always in the same place, which is at the part where it starts the roll forward) it will reduce the working circumference of the cam, which will reduce the distance that the fibers to be pieced are brought forward, consequently making a short overlap and a weak place which does not break as soon as it leaves the rolls because the drag on the web is not great enough until it gets near the puff-pan trumpet. The reason for this is because the weak places in the web are pulled tight, and allowed to go slack about seven times while traveling the distance of the puff-pan; each time they tighten they become weaker, and not until they travel the distance of the pan do they break.

In proof of this I would add that a web consists of a series of overlaps, the only two things that will cause a break is to discontinue overlapping or to time the roll lap too late.

Also having experienced the difficulties caused by worn detaching cams I think if "Darhol" will make another and closer inspection, he will find another form of trouble in the puff-pan of some of the combers, not by a cutting of the web, but in the trumpet of the pan getting *choked*, causing the work to run bad, which is also laid to a heavy lap. In order to overcome it I have known men to ream out trumpets, which overcame it to a certain extent but it is not a good proctice as is causes more fly waste, and it does not compress the web into a hard sliver as it should, causing the sliver to break (not in the pan—but on the table).

Other men, when confronted with this difficulty abandon their attempts to run a heavy lap, causing the mill much loss of production, and blaming the maker of the machine for not providing for this contingency.

But the truth of the matter is, it is not the trumpet, not the heavy lap, or the machine, but it comes from the same source that the other trouble came from *"a worn cam."* In this case not bad enough to cause a complete break, only breaking at the edge or selvage of the web, and accumulating a bunch, after which it is carried to the trumpet, and of course, chokes it up, offering only one *common* conclusion,"either the lap too heavy, or the hole too small."

There are many other conditions that will cause the trouble he speaks of; for instance beginning at the back:

(1.) If the lap roll screws get loose the weight of the twelve pound lap is too heavy to be pulled by the sheet itself, without having weak places in it.

(2.) A lump or an uneven place in the lap, will prevent the cushion of the knife, from gripping it all along its entire length, allowing the half-lap to take most of the cotton to the back noil can, and leaving practically none for the web. To illustrate, suppose a one inch lump in a twelve inch lap, the jaws will close on the highest point, holding one inch allowing eleven inches to go to the waste can. This same condition is the reason why we cannot get as good work from a comber using a doubler lap, as one using a lap which has been through a ribbon. In the ribbon lap we have a smooth and even twelve inches for the nipper jaws to grip, but the doubler lap, as "Darhol" evidently is using, shows the eighteen individual ends alongside of one another like so many ropes, which only allows the nippers to hold the eighteen middles or highest points, leaving thirty-six edges at the mercy of the half-lap needles.

(3.) The segment not being set right will also cause the ends to break, as it must bring the fibers forward at the proper time.

(4) Leather detaching roll requiring oil, being loose, or not set hard enough.

(5) Brass roll out of line, bushing worn out, or not having enough tension.

(6.) Puff-pan muggy.

(7.) Timing of steel detaching roll incorrect.

(8.) Half-lap full of waste.

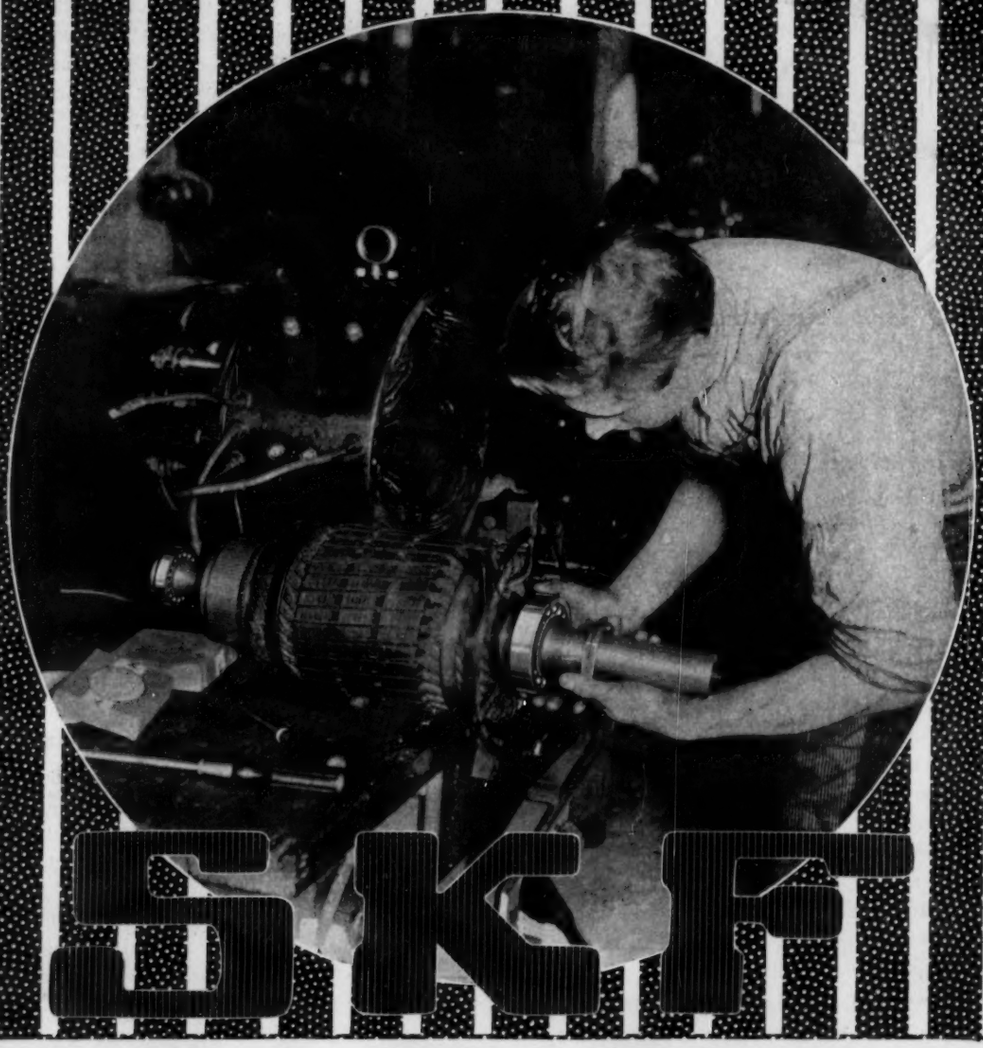
(9.) Brushes not set properly.

And last, I would advise ascertaining whether all the doubler rolls were getting the benefit of the hanging weight, if not, this will cause short draft and a very heavy lap, heavy enough to cause the trouble. A better method is to size once or twice a day, and then if anything goes wrong it can be readily located.

As I stated at the beginning, a reasonably heavy lap will not make the combers run badly, but it will make bad work regarding wear, waste and quality. As we cannot increase our production a pound a week, without losing the same proportion in these other states.

An increase in the weight of the lap will affect the horse power of the machine, wear on the belt, loosen the springs of the feed roll and nipper cam, wear the cushion of the nipper knife, occasionally breaking one, especially if one side is tighter than the other, a certain wear of the leather roll through being dropped back on the blocks every nip, and a wear on the roll varnish with excess friction tending to loosen the cot cover.

In quality we lose by overworking the capacity of the half-lap needles and top comb, the latter not doing a hundredth part of the work it should do, or as many



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Bulletin "Better Electric Motors" explains many other points you should know

Hartford **SKF BALL BEARING CO.** Connecticut

men think it does, if so, it would make about 46 pounds of waste a week, of topcomb waste, as compared with the one-quarter pound that it actually does make.

The last but most important loss a heavy lap will effect is in the noil or waste. The lap is too heavy for the jaws to get a firm grip upon, much good stock finding its way to the waste can. Also makng the drawing too hard for the detaching roll and not making a clean break, that is making a ragged draw from the lap, leaving the long cotton in the path of the needles, which will later be sold at a *waste value*.

L. C. (Rhode Island.)

Comber Settings.

EDITOR COTTON:

Although the range within which settings and timings can be regulated and worked successfully is very limited, it is only natural that we seldom find two persons in charge of combers who will agree on these questions. The principal points to be taken into consideration, however, are the cotton to be used, the length of the staple, the weight of the lap fed, the kind of cotton used, the quality of work required, and the amount of waste to be removed.

It is obvious that different lengths of staple require different settings. This is also true in connection with medium and low grades of combed yarns when compared with the finer yarns, since it is not necessary to remove so much waste in the former case. Assuming that a comber has merely been set up and that the cylinders are loose on the cylinder shaft, it is then necessary to have some one point as a basis and usually a shaft is used as the starting point. In the comber, the cylinder shaft is primarily the base of all settings, for the fact that the cylinder, which is used to set from for certain settings, is centered on that shaft, but as the delivery roll is a more convenient point from which to work when making certain settings, it is given a true and accurate setting with a certain definite relation to the cylinder, and after being certain that it will revolve freely in its bearings, these bearings are secured and then the delivery roll becomes the base of certain settings.

In order to have the cylinder and delivery roll in their proper relative positions, it is first necessary to line up the delivery roll, which is done by presenting each fluted segment of the comber to the delivery roll and moving the bearings of the delivery roll until the space between the surface of this roll and the surface of each fluted segment is at the required distance, usually a number 23 comber gauge; the distance should be tested at both ends of each segment. When this is done, the cylinder shaft and all parts carried on the cylinder shaft, have a definite relation as to the distance from the delivery roll, and although certain settings are made from either base, they do not conflict with one another.

After setting the delivery roll and being positive that it revolves freely in its bearings, the index gear should be placed at 5, after which the cylinders are fastened to the cylinder shaft. One cylinder is first secured so that the front edge of its fluted segment approaches within a certain distance of the face of the delivery roll, after which each of the cylinders are set in the same manner with the fluted segment the same distance away. Of course when the comber is set to this point the first flute of each segment on the comber will be in straight line across the comber. A finger gauge 1⅛ inch long is generally used for this setting. Great care should be taken when making this setting because it is very important that the position of each segment is accurate, since the perfect alinement of these parts is vital to the quality of the product.

Setting the feed roll from the delivery roll by moving the bearings of the feed roll, is a very important setting, owing to the fact that if these rolls are not exactly parallel, there will be a strain on the fibers at one side and only a partial detachment of the fibers at the other side during detaching. The feed roll must also be parallel to the cylinder, otherwise one side of the lap will be combed more than that other side and bad results obtained. In making these settings they should never be so close that the gauge cannot be moved freely from its position. The distance should again be tested at both ends of each fluted section. This setting varies according to the staple and the class of work run.

Before setting the nippers, the cushion plate must be adjusted so that the nipper knife when down, will be in contact with the cushion plate at an even pressure throughout its entire width. If it does not touch along its entire edge, the fibers will be held loosely on one side and tightly on the other. The cotton that is held insecurely will be pulled out by the half lap and will eventually arrive at the waste can, causing a loss of good cotton.

The efficiency of the half lap depends on this setting, and care must be taken that the nose of the cushion is evenly covered in order that it may present a perfectly even surface along its entire length. In setting the parts, two strips of writing paper one at each end of the knife, should be placed between the front part of the cushion and the overhanging lip of the nipper knife, and the setting between these parts made as close as possible and yet allow the strips of paper to be removed easily. When the knife is in contact with the cushion plate, the same test should be made in the center and between the ends and the center. The fluted edge of the segment should be set so that a narrow strip of paper will be held firmly between the cushion plate and the nipper knife when the knife is pressed down on the cushion plate. Before setting the cushion plates to the delivery roll, the set screws should be properly adjusted, having each screw the same distance from the plate, the object of this is to have each head set alike and thus have some definite basis to work from when making future settings.

It is now necessary to set the cushion plates the desired distance from the delivery roll. The position of the cushion plates with relation to the nipper knife has been determined and must not be disturbed, therefore, in order to adjust any one of the cushion plates to the delivery roll, the whole nipper mechanism must be moved. In order to do this it is necessary to loosen the bolts that attach the nipper mechanism stands to the frame work, moving this mechanism on the frame work nearer to, or farther from, the delivery roll until the cushion plate is exactly the same distance from the delivery roll at each end, which insures the delivery roll and the nose of the cushion plate being parallel. Afterwards a more accurate setting is made by means of the set screws.

273

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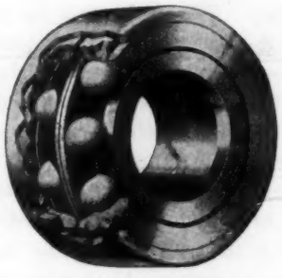

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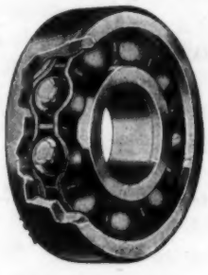

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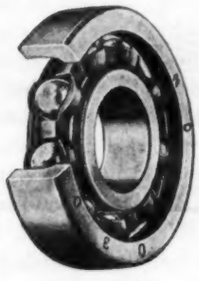

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Conrad Patent Lisensee.

In locating the distance of the nipper from the half lap when the nipper is in its lowest position, the bolt holding sliding bracket should be loosened and a step gauge placed between the end of the set screw and the stand. The object of inserting a step gauge at this place is to swing the nipper mechanism on the center until the nipper knife is in exactly the same position that it assumes when the cotton is being combed by the needles of the half lap.

A step gauge must therefore be selected that gives the exact throw to bring the nipper knife into the required position. During this setting, however, the nipper knife is pressed down on the cushion plate and the lip projects beyond this plate. The setting is made by inserting a number 20 comber gauge between the edge of the nipper knife and the needles of the half lap. The cylinder shaft should be turned so that the points of the needles come directly under the edge of the nipper knife. When the setting is completed, it should be possible to move the gauge the entire width of the nipper without too much resistance; in passing the gauge between the nipper knife and the needles, it is a good plan to slide the gauge on the edge of the knife, that being a smooth surface. When this setting has been completed, the bolts that hold the sliding brackets to the stands should be tightened. The springs should then be put on and adjusted to their proper tension.

One of the top combs should then be set to an angle of from 25° to 30°. When making this setting, the detaching roll should be on the fluted segment in position to detach. and particular care taken to have the top comb set so that it will not come in contact with the nippers or leather detaching roll. The brackets should be loose on the shaft so that they will allow the proper adjustment of the comb. The screws holding the comb to the brackets should also be loose. The quadrant gauge is used in making this setting, and is secured to the comb by means of a thumbscrew. The comb is so set that the plumb bob on the gauge will fall in a position to give the correct angle.

When the top comb has been set to the proper angle and not in contact with either the nippers or the leather detaching roll, the screws that fasten the comb to each end of the bracket should be secured. After one comb has been placed in position, the remaining top combs are, in some cases, placed in position by what is generally known as a "Cradle." Having set one comb, the cradle is set on the fluted segment, the top comb that has already been set is then lowered on the cradle and the screws of the cradle regulated so that they will just bear against the blade of the comb. After having regulated the screws in the cradle, it is only necessary, when desiring to set another top comb, to place it in the cradle and then place the cradle on the fluted segment and secure the comb to the brackets while the comb is held in position, after which the cradle is removed.

The top comb is set from the fluted segment. A number 20 gauge may be used and the comb adjusted so that the gauge will pass between it and the fluted segment without too much resistance. In passing the gauge between the top comb and the fluted segment, it is a good plan to slide the gauge on the fluted segment and drop the comb so that the points of the needles can be felt as the gauge passes under them. The same method of setting the top comb is then employed at each head. When the top combs have been set the proper distance from the fluted segment, the brackets should be secured to the shaft and the screws adjusted. To accomplish this, set the cam on the cylinder shaft so that the bowl will be on the part of the cam nearest the center. A gauge is then placed between the bowl and the cam, and the brackets secured to the shaft while it is held in position. The set screws should now be set so that a piece of paper can be drawn between the ends of the screws and the projections on the brackets. These screws should be adjusted so that a piece of paper can be drawn out at an even tension at each head. Care should be taken while this is being done that the screws are resting on the stands. After all these brackets have been set, the gauge should be removed and the lever raised by hand, by watching carefully, it may then be ascertained whether or not the top combs move exactly together.

When these settings have been properly made it is a very easy matter to complete the few minor settings that are required on the comber.

Honest Bill, (Ky.)

Loyalty and the Successful Mill Man.

BY HENRY D. MARTIN.

Loyalty is the royal road to successful service. Disloyalty is the highway to failure. Loyalty paves the way for the highest success. There is always something better and bigger ahead for the loyal hard working mill man. Disloyalty always leads a man astray. Be loyal and you will make friends fast. It is the loyal man who is invited to come along up and share the successes of his superior in office as he too moves up. The disloyal man is quickly dropped and forgotten. This is because he has not laid aside and stored up a reserve fund of independence from which his would-be benefactor could draw on demand. The disloyal man burns his bridges behind him, and promotion cannot step across the chasm. Nobody can recommend him. He is not constructive and the atmosphere he creates and in which he lives carries microbes of defeat. These microbes work night and day to militate against the disloyal man.

On the other hand, the man who loyally stands by the guns, holds the fort and protects his future against downfalls. This man is always an optimist, distributes no tales of woe, and puts the best contruction upon all with which he comes into contact. He is charitable to a fault. To be in his company for an instant, is to be better prepared to meet other men, face hard tasks, carry the load and grow. The atmosphere is full of success-bearing germs working in relays and double shifts for the loyal man.

The other fellow is very sour. To meet him sends the chills down your back and he tries to paralyze most every effort that his associates make to give a square deal. He magnifies the faults and mistakes of others, and can't see anything going right or straight. All goes dead wrong and finally he is swallowed down by his own conceit in the thick of his mischief-making. Possibly he may succeed for a time but he is always up against it hard and when he drops, he falls so heavily that he goes way down and out of sight, and nobody ever misses him.

If this did not actually happen, he would be a complete man killer and business wrecker. These two roads: loyalty and disloyalty, are ever present. A man must

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choose one or the other for himself. He can build himself up by the one or tear himself down by the other. He cannot be on the fence. He is following either one road or the other. There is no middle ground.

Loyalty not only helps the other fellow but helps oneself at the same time. Helping the other fellow is the best way to make of every other man a genius. Both grow together at the same time and both are content with their lot and relation to one another. The man higher in office may not be better than his workman. He may not be as good. This does not cut any ice with the loyal man. He recognizes the office, is loyal to the man, the business and to his country.

Loyalty never knows it all. It gives the other fellow every chance to be heard on his merits. The loyal man is not like the professor who knew it all. It is said that sometime ago, some people were blasting. A man and a dog were seen coming. They were warned not to draw nearer. They did not heed the warning and it seemed that both the man and dog were blown to pieces. The blasters were trying to get the man's body assembled and put the dog's parts aside. A professor of anatomy appeared, said he "Let me do this work, I can tell which is man and which is dog——Let's see," said he, "this piece is man, so is this. This other piece is dog." When the job was finished the dog was buried behind a barn but the man was brought home for decent burial, and the professor was praised for his work. But there was a surprise the next morning when the dead man's faithful dog came home. The professor's mistake revealed his ignorance and unfitness for service and he lost his place and prestige. The disloyal man is like the professor. He shows his ignorance and brings about his own downfall. The loyal and strong mill man never talks much but does a great deal of work.

Loyalty goes a long way with the loyal man. He is loyal to all. His loyalty does not end with his superiors in office. He is not looking for reward alone. He is loyal to his equals and the less fortunate around him as well. With him it is loyalty to a man. When this man is old and the once less fortunate pass him, and possibly even exceed the success he attained, the elderly man gone by is remembered and not allowed to decrease in the honorable place due him in the world.

Many a man owes the prosperity of his old age to the loyalty he gave to the coming men around him. Somebody has quoted: "Our work in the world is not to get ahead of others, but to get ahead of ourselves." Loyalty accomplishes this. Loyalty is the best capital with which the successful man of the future may start right. Loyalty and success work hand in hand.

There is not a successful mill man but has a strong following of loyalty from his help and those above him. He in turn is loyal to them, and to this mutual loyalty he owes his success.—*Canadian Textile Journal.*

Is some one of your employees responsible to you for the care and absolute cleanliness of your plant? Do you know that this employee is giving strict attention to his duties?

The small business has a better chance to grow than the large one.

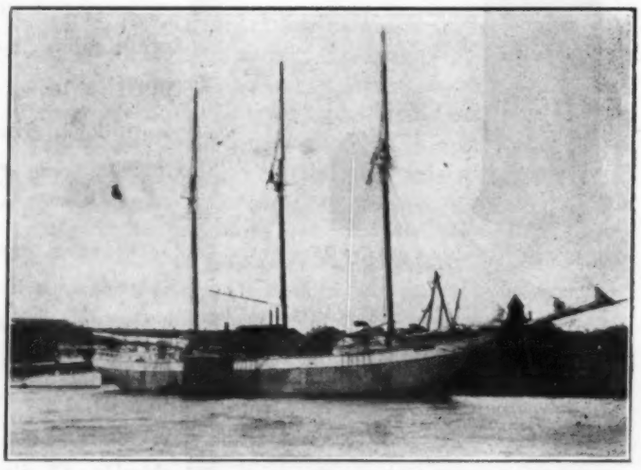
Brunswick and Shipbuilding.

The Georgia port of Brunswick has opportunities for growing into one of the world's leading ports as a shipbuilding center. It is doubtful if it contains a citizen who even dreams of its true possibilities in this respect.

That handsome profits are to be made from the building of ships—especially where materials are so close at hand and facilities so adequate as they are at Brunswick—is shown by the almost romantic story of the Glynn, built at Brunswick by Captain Leo and launched less than a year ago.

The Glynn cost $63,000, and last March he sold her to Mr. Brailey, of the Yaryan company, for $75,500. Outfitting and provisioning the ship, and salaries to the crew for the ship's maiden voyage across the Atlantic cost Mr. Brailey approximately $10,000, while repairs and sundry expenses at Gibraltar, and insurance on the vessel cost in the neighborhood of $11,500, bringing Mr. Brailey's total outlay in the craft to something like $97,000 by the time it arived at Genoa, Italy.

The owner received $52,000 for freight tolls across the sea; and just a few days ago sold the ship outright to



THE GLYNN.

French interests for $90,000, making a total of $142,000 Mr. Brailey received account of the Glynn between his purchase of it and its sale, or a net profit of $45,000 during a period of approximately six months.

The opportunities for rich returns from investments in ocean freight carriers are better now than then, and better than they have been at any time since the war began; and it stands to reason that the coming of peace, with the necessity of rehabilitating the world's commerce, will even better the outlook.

Brunswick has every advantage making for ideal shipbuilding conditions, including propinquity to timber and the steel mines of Birmingham for steel ribs and framework; adequate rail facilities for transportation of materials; abundant yardage fronting on deep water, and climatic conditions unsurpassed anywhere in the world, which permits work in the open air every day in the year.

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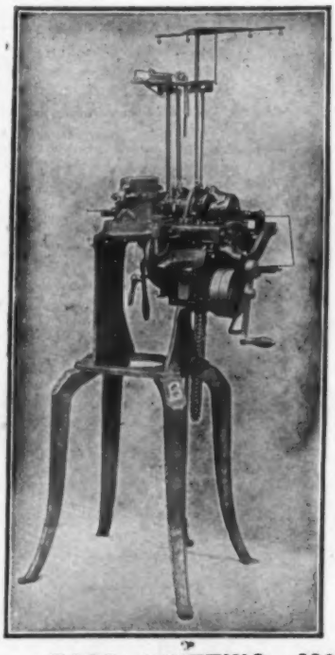

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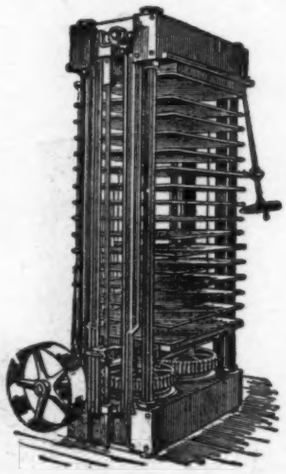

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The Knit Goods Market

Manufacturers are having the better end of the knit goods market, from the standpoint of demand and prices, but are having their troubles in the matter of deliveries. With conscription and enlistments, the Federal Child Labor Law and the opening of the public schools in September to further hamper them in obtaining sufficient help, the outlook for delivering all that will be wanted is not encouraging.

Hosiery selling for spring is on in full swing, although quite a number of mills are declining to quote prices except for spot delivery. Their reasons are that they have all they can take care of in filling back orders and that they look for higher prices as the year advances. This supposition is based on the fact that, while jobbers are taking only about 50 per cent or less of their prospective requirements, with mills operating to help capacity, there must come a serious shortage when the buyers return for what they are declining to contract for now.

A number of jobbers who consented to talk on the subject of restricted buying admitted they were conserving the handsome profits of the last year, that while they looked for heavy retail selling next spring, they were determined to proceed with the utmost conservatism, regardless of their belief that later purchases will have to be made at prices considerably higher than those now prevailing. This, it was admitted, will mean a higher cost to the consumer, who, it was pointed out, will thus assume the penalty for the jobbers' ultra caution.

Jobbers who talk this way are but encouraging manufacturers to remain out of the market for the present or so long as they are busy filling orders taken at lower prices.

It transpires that some of the seemingly high prices at the mill can be traced to the retailer, as one instance that recently came to light will serve to illustrate. A manufacturer delivering a good grade of half hose at $2.50 a dozen learned that several retailers were selling the sock at 50 cents—$6 a dozen—the same price received for a like grade being sold by mills at next year's high price. The manufacturer promptly advanced his price to $3.50 a dozen, being unwilling that the distributors should get all the profit while the consumer was led to believe that the blame for the high cost of hosiery rests with the manufacturers.

As illustrating what the scarcity of help is doing to mills, one lost 90 male employees within the last few weeks as a result of conscription. Another mill with a normal output of 40,000 dozens of hosiery per week will be well satisfied if it gets 25,000 dozens per week for the remainder of the year, and believes the output will fall under these figures. In Pennsylvania the week's work of juveniles under 16 years has been reduced to 37 hours under the operations of the Federal Child Labor Law and the Pennsylvania Continuation School Act. Some manufacturers in this state are no longer giving employment to persons under 16. In Reading, Pa., to gain two hours a week employers have entered into an arrangement with the school authorities, under which a juvenile works five hours in the forenoon and attends school in the afternoon, for two days each week, thus being employed 10 hours in two days, 24 hours in three days and five and one-half hours on Saturdays.

As indicating the plight of some manufacturers, one is in the market for 10,000 dozens of half hose in the gray, while another would gladly contract to take 100,000 dozens. A New York commission house has made a bid for another 100,000. All of this within the last few weeks. The quantities wanted are divided about equally between 144 and 176 needle goods. There is a shortage also of ladies' and misses' fine gauge goods.

Considering the fear of heavy taxation, the growing tightness of money, the danger of naming prices for more than a few months, unsettled labor conditions and the ever present suspense over Government measures for further regulating business, the knit goods market continues fairly steady, with a price variation that makes it difficult to arrive at a satisfactory basis of quotations.

The unsettled condition applies more particularly to hosiery. Certain intersts are taking advantage of the wobbly situation for insisting that prices must be lower. The response from mills is very slow, manufacturers preferring to stand pat. Among the two-season mills there are many that are far from completing their fall orders. These have yet to name prices for spring and apparently will be in no hurry to do so.

The Ipswich (Mass.) Mills, which has been selling in spots, opened its complete line about the middle of September, selling for only a few months. The Lawrence Manufacturing Company, Lowell, Mass., is one of the very large establishments that is waiting, as are the Knoxville (Tenn.) and the Reading (Pa.) Knitting Mills. The disposition among some of the financially strong manufacturers is to wait, particularly in view of the fact that the demand upon them is about up to their help capacity. A few timid mill owners offer slight concessions now, in the fear that later the larger concerns will be in need of business and might be inclined to make an unusual drive.

Cotton goods would seem to tend toward higher prices. Spinners, with the supply of help diminishing, are busy and are believed to have a strong grip on the yarn situation, in the opinion of most large manufacturers. Cotton seems likely to remain relatively firm, with almost certain increased consumption due to a variety of reasons. The shortage of wool means the greater use of cotton. Quarter blood worsted yarn is selling at $1.90 and it need not be a surprise should the price advance to $2.00. Artificial silk around $4.35 to $4.50 and tram hosiery silk selling at or about $7.25 for spot and $7.15 for future should strengthen the cotton hosiery situation. The war is eating up cotton at an enormous rate, for explosives and equipment. On the other side there is little to support the fear of such a decline in cotton or yarns as would not be more than offset by increasing costs of manufacture. There is therefore no justification for jeopardizing profits for hastening the business that must come as the season advances.

It must be borne in mind that the large jobbing houses with costly organizations that will have to be maintained are going to put their men on the road. The smaller houses, not financially able to stock up in advance, must buy as they sell. Already their disadvantage in this respect is being made manifest. Jobbers selling the East Side (New York) peddling trade report a radical falling off in the

ALWAYS FIRST WITH THE LATEST

BANNER

ALWAYS FIRST WITH THE LATEST

FULL AUTOMATIC

HOSIERY MACHINES

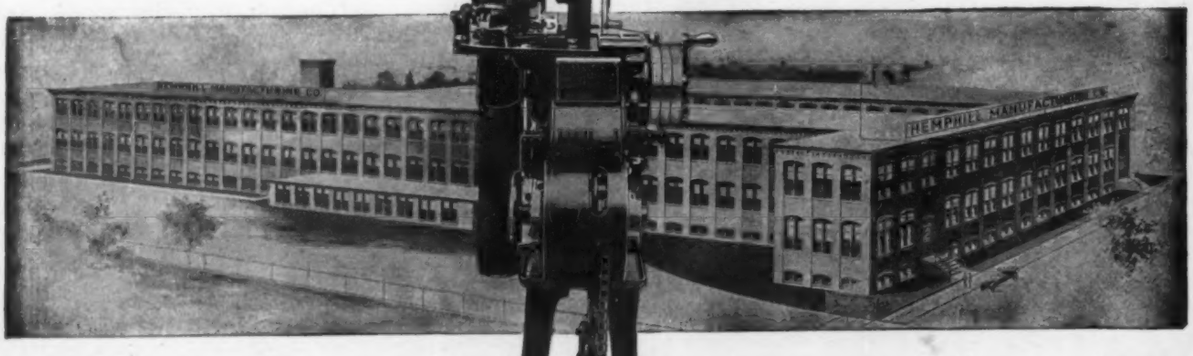
More than 32,000 In Successful Operation

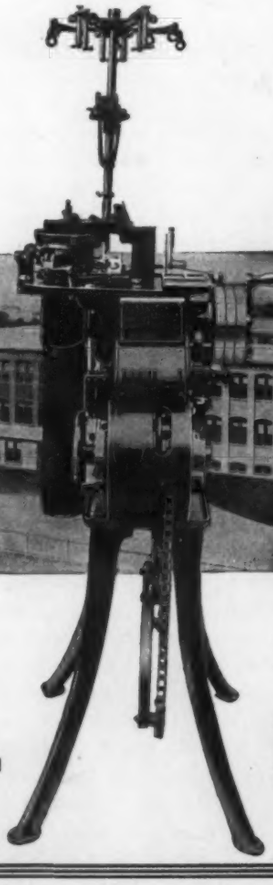
SIMPLICITY — SPEED — PRODUCTION

ALL PARTS ACCESSIBLE FROM FRONT OF MACHINE

ALL STYLES

ALL GAUGES





Over 100 Machines Completed Weekly for Home and Export Markets.

Write for full particulars and samples of work.

HEMPHILL MFG. CO.,

PAWTUCKET, RHODE ISLAND

ROOM 601, LEONARD BLDG., 350 BROADWAY, NEW YORK.

number of their customers. Because of the source of their supplies these peddlers cannot compete with the large retail establishments, and their going out of business does not mean any less consumption, as some interests would like it to appear.

The following quotations, while obtained from trustworthy sources, and doubtless reflecting the approximate market values, should not be accepted as absolutely accurate, and some allowance must be made for variations in quality and finish.

Ladies' mercerized—220 needle, $2.40 to $2.80. A distinctive number, 220 needle, 440 needle ribbed top, is selling at $3.75. For 240 needle, $2.80 to $3.

Mercerized half hose—200 needle, double sole and high spliced heel, $1.90 to $2.10. Single sole, $1.75 to $1.80, the prices being named for cotton top goods.

Ladies' cotton—176 needle, 20 ounces, $1.10 to $1.15; 188 needle, $1.30. A line of 220 needle, 440 needle ribbed top, is finding buyers at $2.60, and an extra fine number of combed lisle, 200 needle, 400 needle ribbed top, is going to jobbers at $3.25. A northern make of 200 needle, combed, 22 ounce, is quoted at $1.75 to $1.85. A line of carded, 28 ounce, is being offered at $1.35.

Cotton half hose—200 needle, combed, double sole, $1.65; carded, $1.50 to $1.55; 176 needle, one pound, $1.15 to $1.25; 188 needle, one pound, $1.30; 144 needle, 17 ounce, around $1.10 for sewed toe, with sales at $1.05 for looped toe reported; 84 needle, 2 pound waste yarn, $1.07½ from stock; $1.15 quoted for future.

Half hose, artificial silk—Quoted at anywhere from $2.40 to $3.25.

Ribbed, misses—28 ounces, $1.20 to $1.30 on size 7, the higher price being obtained by at least one mill. Boys' 3 pound on size 9, $2 on size 8. Children's 300 needle, 28 ounce, $1.90 on size 9.

A somewhat disturbing factor is an occasional sale by a jobber under mill prices. These are lots of which the merchant has more than his requirements coming in against orders placed at low prices. A western concern recently unloaded 21 cases of ladies' artificial short silk boot goods which went into a decline because the boot was too short to conform to the very short skirt.

While underwear prices are steadier than in hosiery, the volume of business is not large, yet up to mills' ability for the proper handling of all that is offered. In some lines, notably those from mills engaged on government work, supplies are short of demand.

The William Carter Company, Needam Heights, Mass., selling to retailers, is about to go out for spring. Last year the company sold for the whole of 1917, and has assured customers that every dozen will be delivered.

Retailers buying from mills are regarded well stocked for spring. One concern reports that its light weight sales last year were in many instances at least 40 per cent above requirements. This mill therefore is not looking for bumper business for next spring, but is not in distress, as it is well supplied with government orders.

While Pennsylvania underwear mills have room for some additional business, many of those in New York state are either sold up for from three to five months or have withdrawn their lines for one reason or another. One mill, in Cohoes, N. Y., has notified civilian customers that it cannot fill the remainder of their fall orders, and another is looking for manufacturers willing to relieve the mill of about 75 per cent of its commitments to jobbers. Both are overwhelmed with government work.

Manufacturers of mercerized underwear are fearful that the prices of these garments will place them in the luxury class and are seriously thinking of returning to non-processed cotton. Persons close to the mercerizing industry see no hope for lower prices of mercerized yarns. One establishment conducting a commercial mercerizing plant is getting 10 cents for the processing, using caustic soda that is being taken against contract at 3½ cents a pound, while a recent quotation was 9½ and all indications point ing to advances. At the then price, the cost of the caustic soda necessary for the mercerizing of a pound of yarn was in excess of six cents, yet the mercerizer was exacting but 10 cents for the process, having less than four cents to cover the cost of labor and other chemicals, all of which are reported scarce. Any material decline in the cost of mercerized yarns can but come in the event of a radical drop in cotton and a slowing down in business, in the opinion of some well informed authorities.

Samples of hosiery and underwear are being received at the office of the National Association of Hosiery and Underwear Manufacturers in Philadelphia in response to a letter sent out recently announcing the establishing of a price exchange. The samples will be kept on exhibition at the office of the Association, for the inspection of members. Samples are tagged with a description of the merchandise and the price obtained or quoted. By means of the descriptions, the office is enabled to compile weekly reports, which are tabulated and copies sent to each manufacturer taking part in the price-sample exchange.

It is the purpose of the Association to exhibit all the tagged samples at the sectional and divisional meetings, in order to afford a wide range of inspection and comparison of prices. Manufacturers are hopeful that through the exhibits a gradual standardizing of lines and prices may be brought about. It is thought the enterprise will tend toward overcoming the wide disparity in quotations so frequently reported, and that manufacturers may find they have priced their products too high or too low, or have it revealed to them how there may be a saving in cost, without impairment of quality. At this time the exchange is an experimental stage. The promoters are sanguine of its complete success, and say they believe that, once firmly established, it never will be abandoned.

"Genius is only the power of making continuous effort. The line between failure and success is so fine that we scarcely know when we pass it; so fine that we are often on the line and do not know it. How many a man has thrown up his hands at a time when a little more effort, a little more patience, would have achieved success. As the tide goes clear out, so it comes clear in. In business, sometimes, prospects may seem darkest when really they are on the turn. A little more persistence, a little more effort, and what seemed hopeless failure may turn to glorious success. There is no failure except in no longer trying. There is no defeat except from within, no really insurmountable barrier save our own inherent weakness of purpose."—*Elbert Hubbard.*

TRADE MARK REG. U. S. PAT. OFF. PATENTED MAR. 31, 1908

FLATLOCK SEAM

Endorsed by the Governments of the United States and Great Britain

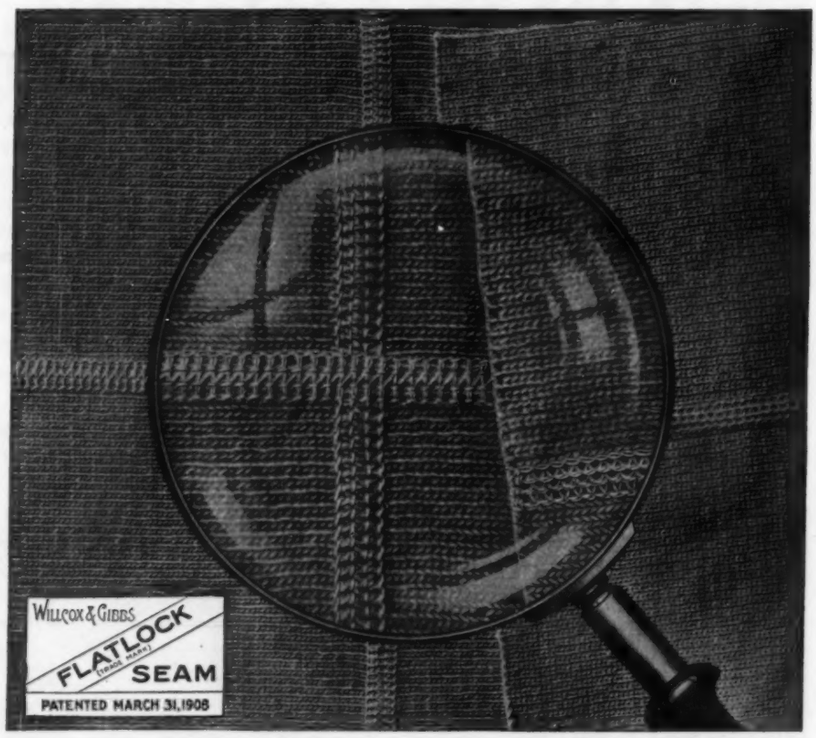
Last March the United States Government issued specifications for underwear, as follows:

"All seams to be flat and double seamed except where FLATLOCK seam is used * * * All stitching to be secure and strong, and not to ravel or pull out." (Specifications 55U1A)

The FLATLOCK Seam is absolutely flat—a perfect union of abutted cut edges.

Any number of stitches in the Flatlock seam may be cut, but the seam itself *will not rip nor ravel when pulled in either direction.*

Over 160 manufacturers in the United States, Great Britain and Canada are now using the Flatlock Seam either exclusively or for the more important seaming operations in the undergarments they make. In Great Britain 60 manufacturers are Flatlock Seaming underwear for the Army and Navy.



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If the governments of these two great countries, the United States and Great Britain, so thoroughly approve the use of Flatlock Seam on military underwear, is it not fair to claim that underwear with the Flatlock Seam will prove more satisfactory and therefore more salable to the civilian customer and hence more profitable to the manufacturer than underwear seamed by any other method?

Trade Mark

Reg. U. S. Pat. Off.

Willcox & Gibbs Sewing Machine Co.

Home Office, 658 Broadway Cor. Bond St.
NEW YORK

Willcox & Gibbs Sewing Machine Co., Ltd., London, Paris, Milan

Canadian Representative: W. J. Westaway, 5 Sun Life Bldg., Hamilton, Ontario.

Trade Mark

Reg. U. S Pat. Off

Reducing Costs in the Knitting Mill.

BY SUPERINTENDENT.

Having had an experience, covering a period of years, installing machinery in knitting mills throughout the country and coming in close contact with devices and means which were meant to cut costs and improve efficiency in the various branches of the knitting business, the writer was fully determined that when the time came for him to take hold of a mill as its superintendent he would apply what he had seen and learned in his visits to various mills, together with his own knowledge and ideas and thus obtain efficiency at low costs.

Several years were spent in the machine shop, building knitting and finishing machinery and so a practical knowledge of the primary end of the knitting game and one of the very essential features of a first class superintendent came to the knowledge of the writer.

The mill he was called on to take charge of was one that was not in the worst condition, nor was it the best; it had gone through a varied career of sometimes making gains and again sustaining losses; at the time of which we write, it was just on its feet, battling hard to keep up its own with other plants making goods of a like nature.

A careful study of the plan and the way its business was done would show no single leak which amounted to very much in itself, but losses of a small nature occurred in nearly every detail of the business, from the buying of raw materials to the finishing and selling of its products.

We will show some of the existing conditions, together with what changes were made in the handling that the garments were called on to undergo.

The knitting machines used were both flat bed and of the circular type and were of various gauges, ranging from 2½ up to 12 needles per inch.

Most of the garments made on the various gauge machines were sold in competition with other mills who specialized on some one class of goods. Here is where we find our first opportunity to study carefully and get the best for the lowest cost, where such conditions prevail, it has been the better plan, in the opinion of the writer, to try as near as is possible and divide the various classes of garments into departments of their own.

We do not mean that they need to be fenced off from other parts of the mill, but we do mean that every class of goods must be treated as a unit and materials must be bought accordingly, prices for manufacturing paid accordingly and goods sold likewise.

This plant was purchasing yarns to be used on a 5 needle per inch machine and was using the same on a 2½ needle per inch machine, getting the desired weight by using a multiple of yarns. For instance, a garment made full-fashioned in every particular on a 5 needle flat machine of a 3-21's yarn was also obtained on a 2½ needle machine by using 6 ends of the yarn, whereas on the coarser machine a 2-7's yarn could have been used to much better advantage. The fewer ends used, the less winding. The heavier the number of yarn, the lower its cost. Here then were two losses brought about by the use of the wrong number of yarn, one in the winding department and the other in the yarn department. Together, these losses amounted to between 50 and 75 cents per dozen.

This trouble prevailed all along the line. It had only one redeeming feature: It made it unnecessary to carry too great a stock of worsteds. This advantage, however, was more than counteracted by the losses referred to.

In this mill they were using a lot of flat bed machines, 18 inches across the bed. These machines were all right as long as they were confined to garments for youths, misses, juniors or juveniles, but they were also used for the larger size garments for men and women. To overcome the narrowness of the machine, they were using a heavier yarn than was needed. To correct this very wasteful method, we purchased new needle bed plates 24 inches wide, thus giving 6 inches more of knitting surface. These plates were not very expensive. The bed or frame of each machine was cut into two parts and a 6 inch piece inserted and securely fastened so that the locks could travel safely from one end of the needle-bed to the other.

This change was effected on twenty machines and it was then possible to knit garments as large as was required without having to use heavier yarns than the sample called for. Needless to say, the new needle beds paid for themselves in a very short time.

The stock or supply room required considerable attention. Here the greatest single leak was going on. The floor was strewn with buttons, pins and other supplies of greater or less importance. Needles were lying around in a careless manner with little or no thought of this day, when a scarcity of such things is a cause of so much anxiety.

Anyone needing supplies of any kind usually helped himself or was helped by someone who asked no questions and kept no records of the material thus delivered. This lack of system was corrected and showed a vast saving in less than a month's time. Requisitions were required for everything which left the stockroom. Supplies delivered were charged against the particular department calling for them.

In this way the shaker department, for instance, was not charged with things used in the Link and Link department, nor were the Rachels made responsible for supplies used in the circular knitting department. Each department showed its losses or gains more clearly in this way than had ever been possible in this plant before.

Only the required amount of wool, worsted or silk, as the case might be, was issued from the stockroom to fill a given order and any deficit which occurred before the order was completed could be procured from the stockroom only on order issued by some one in authority, usually the superintendent. Such excess would be charged on the customer's requisition and entered accordingly as a loss. The "Sherlock Holmes" of the plant then started to work to ferret the source of the loss, with the result that the guilty operator was discovered and reprimanded if at fault. A remarkable saving occurred right at this point.

The system installed in the stockroom prevented carelessness in the handling of "findings" in the finishing department. Ribbons, satins, etc., used for facing and other parts of coats were ordered less frequently than before and even the furs for trimmings seemed to go a little further.

More important, perhaps, was the discovery that the plant was not producing the output which might reasonably have been expected of it. A piece-work basis prevailed. Lack of spirit was very conspicuous. To correct this de-

Circular Rib Knitting Machinery

PRODUCTS

Underwear, Sweaters, Cuffs with Cut Welt, Selvage, or French Welt, Mantles, Collarettes, Toques, Golf Caps, Hosiery Tops, Skirts, Borders, Corset Covers, Button Stays, Mittens, Bandages.

FEATURES

Rectangular Slots, Hardened at Bottom, Sectional Caps and Cam Rings, Hardened and Ground surfaces, Sensitive Take-Ups, Two Speed Drive, Dogless Attachment, Positive Pattern Mechanism, Needle Guard and Protector, Automatic Stop Motions, Electric Cloth Cutters.

Characteristics

The characteristics of a knitting machine, like those of an individual, are determined by its origin and history; just as knowledge of the individual's family, schooling, and early life are desirable for the formation of an idea of his characteristics, so knowledge of the plant, personnel and ideals involved in the construction of the knitting machine are necessary for an understanding of its merits. Investigate the origin of our knitting machinery.

Wildman Mfg. Co.

ESTABLISHED 1889 **NORRISTOWN, PENN.**

fect, a system of graduated prices was adopted. Now a series of three prices is paid all over the mill for work done. The operators are remunerated on a weekly and not a daily production, so that all are compelled to work steadily in order to reach the top or maximum price paid for work. The knitting, as well as the finishing comes under this rule.

It was soon recognized by the operators that inattention and indifference made a considerable difference in the pay envelope at the end of the week. Production increased and overhead expense went down automatically. A greater number of the operatives are getting the highest price offered, and this is the price used in figuring the cost on all garments produced.

These radical changes were not brought about without some little conflicts but perseverence on the part of the superintendent demonstrated to the operators that the change was for their own good and harmony soon prevailed.

The garments produced by this mill were of fair quality, but, in some respects, they were unsightly. A hand-made buttonhole, for instance, had been the boast of the mill, but no uniformity prevailed. Each operator had his own views as to the size and shape desired and many hard-looking buttonholes went through as a result.

This was overcome at a very slight cost. The plant was equipped with a well-known make of buttonhole machine and before coats went to the hand-sewer they were first passed through the machine. Very cheap materials were used in the sewing. The coats then went to the hand-sewer and the hand-made holes were all of the same size and shape thereafter.

A requisition was issued with all orders received showing just what the customer required. If any one thing on the order was different from the original sample, the number was followed by an X to indicate to every operator to look for the change desired over the regular number.

A very thorough and intelligently constructed cost-sheet was compiled for every sample produced.

These changes enabled us to compete on the very best possible basis with any mill making a similar line of goods. Provided the mill was kept busy, it could not operate at a loss. Manufacturing costs were reduced to a minimum, and gross profits were limited only by the volume of business done. The responsibility for failure was thus shifted from the manufacturing to the selling department—which should be the goal of every mill superintendent.—*Sweater News.*

Among the Knitting Mills.

The Ashe Hosiery Mills of Knoxville, Tenn., which were recently incorporated for $25,000 and started on the manufacture of infants' half-hose and children's ribbed goods, are in full operation. The equipment consists of 50 knitting machines, 38 rib machines and 12 loopers.

The Griffin (Ga.) Hosiery Mills, which was noted as starting early in the year, have increased their equipment until at the present time they are operating 60 knitting machines day and night. They manufacture 220 needle ladies' hose in black, tan and bleach. They do their own dyeing and finishing, and the greatly increased production has necessitated the recent building of a one-story finishing room adoining the main plant, 45 feet by 20 feet. Superintendent C. T. Smith, who has immediate charge of this plant, has been twenty-six years in the hosiery business. His expert knowledge is plainly shown in the quality of the goods produced. T. L. Shapard is president, and R. T. Shapard, secretary and treasurer.

The Kennesaw Hosiery Co., Marietta, Ga., has been organized, with B. G. Brumby as president and buyer, and incorporation papers have been granted to the new concern, which has a capital stock of $40,000. The building formerly occupied by the Marietta Chair Co. has been secured and will be occupied under lease, with an option to buy. Half-hose, probably 176-needle, will be manufactured, and Mr. Brumby was recently in New York purchasing the necessary machinery and equipment for a daily capacity of 500 pairs.

The Paragon Knitting Mill of Oklahoma City, Oklahoma, which we mentioned last month as being in prospect, is being organized with a capital stock of $250,000, and proposes to erect and operate a knitting mill to manufacture ladies' hosiery under the trade name of "Indian Brand Hosiery." A. W. Thornley is manager, and may be addressed at 707 Colcord Building, Oklahoma City, Oklahoma.

A knitting mill is being established at Lawndale, N. C., by W. R. Newton, D. Elmore and C. J. Yelton. A frame structure is being built for the mill, which will start with an equipment of approximately twenty machines.

The G. H. Y. Hosiery Mill at Concord, N. C., is preparing to increase its plant. A large brick addition is being built which will give considerable extra floor space. The present equipment is 50 knitting machines. The company is capitalized at $25,000. J. F. Goodman is president; J. B. Morris, superintendent, and A. R. Hoover, treasurer and manager.

The M. M. and T. Co., Morganton, N. C., is to be converted into one of the largest knitting mills in the country. This plant is being remodeled, and a large wing added, the work being almost completed. The enterprise springs from Valdese, which may properly be termed the home of the knitting industry in that section. The firm is capitalized and will be operated by men from Valdese, the principal promoters being the Garrons and M. Brinkley.

The West Branch Knitting Company, Milton, Pa., is operating at full capacity, the company having received several large contracts from the Government for stockings. It is said that these orders will keep the plant working for the next eighteen months.

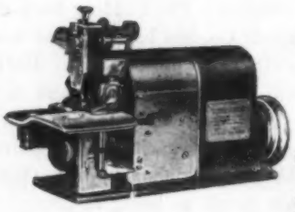
The Gilt Edge Hosiery Mills, Philadelphia, Pa., have been incorporated with a caiptal of $10,000 to manufacture hosiery, underwear, etc. John A. Keppelman, W. M. Deisher and Ralph G. Hill, all of Philadelphia, are the incorporators.

Barger, Bains & Munn, Philadelphia, Pa., have doubled the capacity of their Bloomsburg mills. The company has also erected a dyeing plant for the finishing of hosiery, which was formerly sent to Philadelphia to be dyed.

The Elizabeth Mills, Inc., New York, have been incorporated with a capital of $50,000 to manufacture textiles. A. Butler, H. F. Mela, and M. Wilkes, 60 Broadway, are the incorporators.

Fire recently destroyed the plant of Baker Brothers, Schuylkill Haven, Pa., manufacturers of underwear, with loss estimated at about $50,000. The company will immediately rebuild the plant, and it is said that the new mill will have double the capacity of the former factory.

MERROWING



ESTABLISHED 1838

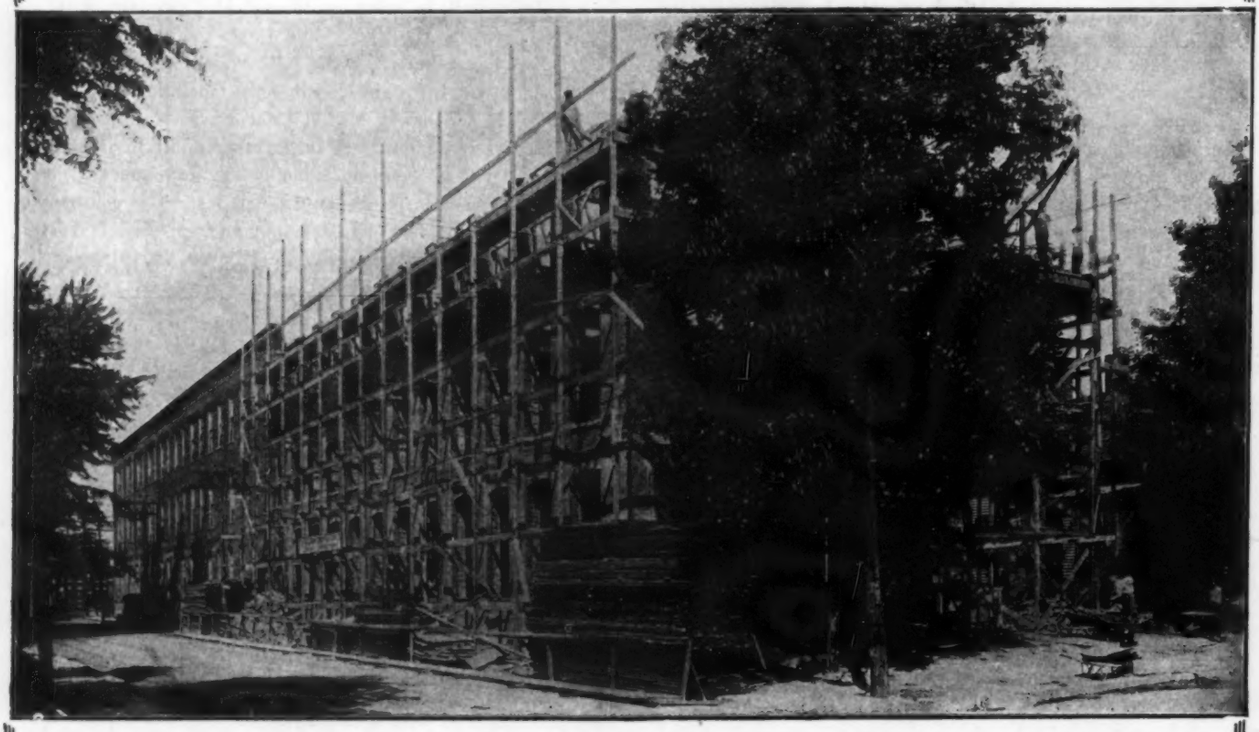
THE MERROW MACHINE CO.,

HARTFORD, CONN., U. S. A.

MAKERS OF

THE MERROW HIGH SPEED OVER SEAMING, OVEREDGING AND SHELL STITCH MACHINES FOR FINISHING ALL KINDS OF KNITTED AND WOVEN FABRICS. *Send for Catalog and Samples.*

BRANCHES IN ALL PRINCIPAL CENTERS.



THE operation of finishing on the Class 60 **MERROW MACHINES** is known everywhere as **MERROWING.**

MERROWING means strength, rapidity, therefore, economy.

Everybody could not have the **MERROWING** on their garments because there were not **MERROW MACHINES** enough to go around. We have always intended to supply the demand but we just could not, so we have had to ask our good customers to stand in line and take the **MERROWS** when we could turn them out.

Three years ago we doubled our plant and then we could not fill orders promptly so many large and small manufacturers wanted to do the **MERROWING** on their garments at the same time.

Now we are obliged to again double our plant which please note by illustration above.

The roof will be on the extension before this goes to print and very soon after machinery set in place for producing more **MERROWS.**

We hope soon, for a time at least, to be able to fill orders promptly for **MERROW MACHINES** so that everybody who wants their garments **MERROWED** can have them. We have more ground space and just as soon as we find our building is not large enough to furnish all the **MERROWS** the world wants, we shall lay more brick and turn out more **MERROW MACHINES** for **MERROWING.** So far as we know, we are the only makers of **overseam sewing machines exclusively** in THIS wide world. The world is our market.

It can hardly be said that the **MERROW MACHINES** made Hartford famous, but Hartford made the **MERROW MACHINES** famous.

The Carbondale Underwear Company, Carbondale, Pa., is planning for the erection of a new plant to double its capacity. About 75 new hands will be employed for initial operations. The company specializes in the manufacture of muslin underwear.

The Ipswich Mills, 201 Devonshire Street, Boston, Mass., have filed plans for the construction of a four- and one-story hosiery mill, about 80 x 148 feet, and 80 by 100 feet, respectively, to be erected at Gloucester. Contracts for erection have been awarded.

The Riverside Hosiery Company, Riverside, Pa., has commenced the rebuilding of the portion of its plant recently destroyed by fire, and will continue operations at an early date. Christian Dick heads the company.

The Orka Manufacturing Company, New York, has been incorporated with a capital of $10,000 to manufacture knit goods, hosiery, etc. S. G. Joel and A. Kaufman, 160 Broadway, are the principal incorporators.

The correct name of the firm recently incorporated to do a dyeing business at Burlington, N. C., is the Standard Dye Works, Inc., and not the National Dye Works, as previously reported. The company has purchased a building and will begin operations in December or January, dyeing and finishing hosiery. The capital stock of the organization is $100,000 and its officers are D. E. Sellers, president; W. H. May, treasurer, and John Keesey, superintendent and buyer. The plant will be operated by electric power.

Officers have been elected for the Piedmont Finishing Mills of Burlington, N. C., incorporated with $50,000 capital. This company has a plant with daily capacity 2000 dozen pairs of hose, and it employs 60 operatives. Its building is a one-story 275 by 80-foot brick mill structure costing $10,000, and its $10,000 equipment of machinery includes 30 knitting machines, with dyeing apparatus and electric power drive. S. J. Hooker is president and J. P. Thomas is secretary-treasurer.

One hundred knitting machines will be added by the Queen Knitting Mills of Statesville, N. C., and this new equipment has been purchased.

C. S. Groves, C. T. Morrison, J. M. Arnold and others, Hickory, N. C., have incorporated the Clairmont Hosiery Mills with $6000 capital. This company acquires the Groves and Morrison hosiery knitting mill.

The Paul Knitting Mills at Pulaski, Va., are understood to be considering the construction of an additional building to be equipped with machinery for dyeing the plant's product of hosiery.

A new mill building which will be constructed for Nelson Bros., at Duluth, Minn., will be begun this fall, and it is hoped to have the building ready for occupancy by Feb. The amount involved in its erection will be about $25,000. The structure will be two stories high, with a 50-foot frontage and a depth of 80 feet. It will be so constructed as to make possible the addition of other stories as they are found necessary. The Nelson Knitting Co. will occupy the second floor, leasing the first floor for business purposes. At the building which the company now occupies, an equipment of 27 flat knitting machines, is installed, and the product is hosiery, sweater coats, underwear and fancy knit goods

Calculations for Knitted Fabrics.

BY WILLIAM DAVIS, M. A.

ALTERATION IN FABRIC TEXTURE.

In former issues the principles underlying the estimation of knitted fabrics in terms of weight per yard were fully demonstrated and it now follows to outline the system of making alterations in the weight and texture of the knitted fabric. For such alterations we always start from a known fabric the textural conditions of which we desire to repeat in another weight. The utility of this form of calculation will be evident when one considers the growing practice of knitting manufacturers sending out their products to customers in the form of a range of textures where the chief factors in the variation are the counts of yarn and the courses per inch. In making a range of textures the general features of the fabrics are identical, except that one member of the series varies from its neighbor in weight and density. Manufacturers have of recent years found it of considerable advantage to send out their products in this form, because it makes it possible for them to concentrate their activities on a comparatively small number of weights of fabric. If some such scheme be not adopted, the trade has to be carried on in a large number of weights and textures which in many instances differ from each other in a very minute manner.

To embrace the chief differences, the range should be carefully selected so as to embody the chief features sought for by the customer. In such a range of textures we usually have a winter and a summer weight represented, the texture of the fabric being maintained, but the resultant weight being less in the summer fabric than is the case with the winter sample. In too many cases, the matter of varying the texture of the knitted fabric proceeds in a groove of trial and error, so many yarns are in stock and the overseer tries each of them in turn till he secures the weight he requires. There is no reason why the principles of altering the structure in this way should be matters of doubt, and in devising the necessary formulae the following factors are evolved.

Some years ago COTTON published a series of investigations made by the writer to show that the structure of the knitted fabric was based on the rule of squares when it was demonstrated that when a fabric was altered in its yarn or course per inch, the alteration could be expressed as taking place according to the square root of the yarn counts. A full demonstration of this basic principle was then given and we do not propose to repeat it here, but shall rather proceed to extend the principle to a number of variations which are frequently being made in the knitted fabric. These cases may best be shown by a number of concrete examples.

Example 1. A knitted fabric of given particulars weighs 8 ounces per yard and is made from 2/20's worsted yarn, find the yarn number required to give a fabric (a) 6 ounces per yard; (b) 7 ounces per yard; in each case preserving the same balance of structure.

Taking case (a) the weight per yard is given as 8 whilst the new fabric has to show 6 ounces per yard. The alteration of the yarn number takes place according to the rule of squares and inversely, that is the new yarn number will be higher to account for the lightest fabric.

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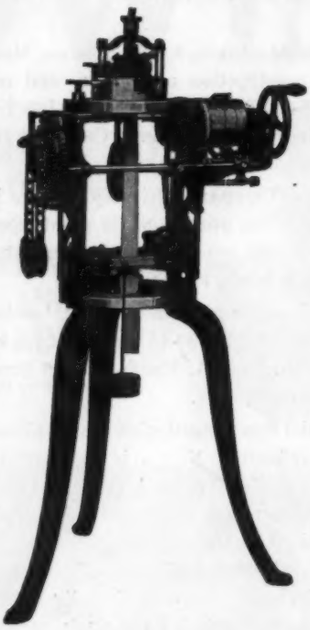

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6 ozs. : 8 ozs. : : $\sqrt{10}$'s yarn counts : the answer.

$$\frac{8 \times \sqrt{10}}{6}$$

as the square root of 10 may involve a rather long calculation unless a table is at hand, this may be avoided by squaring the whole expression thus:

$$\frac{8 \times 8 \times 10}{6 \times 6} = 17.7 \text{ counts}$$

or equivalent to 2/35's worsted counts approximately.

For case (b) we state the problem as follows:

$$\frac{8 \times 8 \times 10}{7 \times 7} = 13\text{'s approximately} = 2/26\text{'s worsted.}$$

Example 2. A knitted cloth made from 16's 2-ply cotton yarn weighs 4 ounces per yard of given dimensions. Find the equivalent cotton counts to make a fabric of similar texture weighing 5 ounces and 6½ ounces respectively.

For the first case the weight requires to be increased by 25 per cent or from 4 to 5 ounces per yard and the case can be stated as follows with the variation taking place inversely as the square root of the counts:

5 : 4 : : $\sqrt{8}$'s cotton : the answer.

$$\frac{4 \times \sqrt{8}}{5} = \frac{4 \times 4 \times 8}{5 \times 5} = 5\text{'s or } 2/10\text{'s cotton approximately.}$$

Similarly for the second example we have the formula:

$$\frac{4 \times \sqrt{8}}{6\frac{1}{2}} = \frac{4 \times 4 \times 8 \times 2 \times 2}{13 \times 13} = 3\text{'s cotton} = 2/6\text{'s counts.}$$

Example 3. A knitted fabric made from 2/24's cotton yarn is worked with 28 courses per inch in the fabric, find the number of courses required for a fabric of similar texture made from (a) 2/18's yarn; (b) 2/26's yarn. For (a) we have the formula:

$\sqrt{12} : \sqrt{9} : : 28$: the answer.

$$\frac{9 \times 28 \times 28}{12} = \sqrt{588} = 24.25 \text{ courses per inch.}$$

$\sqrt{12} : \sqrt{13} : : 28$: the answer.

$$\frac{13 \times 28 \times 28}{12} = \sqrt{850} = 29.1 \text{ courses per inch.}$$

Example 4. A knitted fabric worked from 2/32's worsted has 30 courses per inch, find the size of yarn required to make a fabric (a) with 25 courses per inch which will exhibit the identical balance of structure. (b) Also the yarn size for a fabric with 33 courses per inch. The first case is stated thus:

$$30 : 25 : : \sqrt{16} = \frac{25 \times 4}{30} = 10/3$$

The answer 10/3 must be squared thus

$$\frac{100}{9} = 11.1\text{'s or } 2/22\text{'s worsted.}$$

For example (b) we have 30 : 33 : : $\sqrt{16}$: the answer.

$$\frac{33 \times 4}{30} = \frac{22}{5}$$

this squared gives 19.3 or 2/38's worsted.

In example 3 are given cases where the square roots of 2 numbers are involved and when squaring up we require to find the square root of the answer. In example 4 the square root of 16 is 4 and when working in this way, the answer has to be squared as demonstrated. In the latter case, the small number indicates the procedure and in case (3) the large answer indicates that the root requires to be taken as the answer.

It often happens that the alteration required is expressed in the form of a fractional part such as a sixth more or one-fifth less in weight and it is common to have such expressions loosely dealt with, so that errors result.

Example 5. A knitted fabric made from one course of 16's cotton and one course of 2/20's alternately is required (a) one-fifth lighter and (b) one-seventh heavier, find the new counts for each case.

In the first instance the weight is required one-fifth lighter which means that for the purpose of calculation we may use the figures 5 : 4; 5 being the number given and 4 being that required. We now proceed to use these along with the rule of squares. The square root sign is placed over the yarn numbers and the two counts are found in turn, these being increased according to the figures 5 : 4 thus:

4 : 5 : : $\sqrt{16}$: the answer.

$$\frac{5 \times 5 \times 16}{4 \times 4''} = 25\text{'s cotton yarn.}$$

For the second yarn counts the formula is expressed thus:

4 : 5 : : $\sqrt{10}$s

$$\frac{5 \times 5 \times 10}{4 \times 4} = 15.6\text{'s cotton counts or } 2/31\text{'s double thread.}$$

In example (b) the weight is asked one-seventh heavier which means that a smaller yarn number will be required, this reduction being according to the square root of the yarn counts and in the ratio of 7 : 8.

$$8 : 7 : : \sqrt{16} \text{ or } \frac{7 \times 7 \times 16}{8 \times 8} = 12.2\text{'s cotton counts. (a).}$$

$$8 : 7 : : \sqrt{10} \text{ or } \frac{7 \times 7 \times 10}{8 \times 8} = 7.7 \text{ or } 2/15\text{'s counts.}$$

Example 6. A knitted fabric is composed of 2 courses of 2/24's worsted alternating with 1 course of 40/2 spun silk and it is required to find new yarn counts which will (a) increase the weight by 10 per cent; (b) reduce the weight by 15 per cent.

For (a) an increase of 10 per cent is required which means that the numbers used will be 100 : 110, these being manipulated in the proportion to give a less yarn number, thus for the 12's worsted:

$$110 : 100 : : \sqrt{12}\text{'s or } \frac{100 \times 100 \times 12}{110 \times 100} = 10\text{'s approximately.}$$

For the silk this is worked 2-ply, the single count is equal to 40's and 2-ply, this will make 20's count silk, when the formula becomes:

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$$110 : 100 : : \sqrt{20\text{'s or}} \frac{100 \times 100 \times 20}{110 \times 110} = 16.5 \text{ silk.}$$

This is 2-ply and will therefore give 33/2 spun silk counts.

For (b) the weight has to be reduced by 15 per cent, which gives us 100 : 85 as the two numbers to be used in the proportion to obtain a higher yarn number.

$$85 : 100 : : \sqrt{12\text{'s or}} \frac{100 \times 100 \times 12}{85 \times 85} = 16.6 \text{ counts.}$$

$$85 : 100 : : \sqrt{20\text{'s or}} \frac{100 \times 100 \times 20}{85 \times 85} = 27.7$$

For the first the 2-ply counts would be 2/33's whilst in the second case the nearest silk counts would be 2-ply 55's. In all these examples it is not merely an increase or reduction in weight, but the condition is attached that the texture of the fabric has to remain the same. In such cases when the calculation is made frequently, it is sometimes advisable to draw a graph of the variation undergone with various counts and we have seen some very interesting examples of such. These graphs involve square roots in the form of curves and the practical man has no great use for them. It is more useful to have straight line graphs, especially if drawn out on a large scale and ruled very minutely. Curved graphs are not so accurate when used for calculation and for this reason they remain chiefly a matter of academic interest. The practical man, if he is sure of his methods, would rather figure a result for himself than trust to a tracing made from an arithmetical diagram, however, perfect it may be.

(To be continued.)

A View of the Present Plant.

The Merrow Machine Company.

Outside of the industry of making ammunition and war supplies there are few the development of which was more phenomenal than that of the Merrow Machine Company, Hartford, Conn. They were established in 1838 in a small way like many other of our largest industries, but by faithful toiling and attention to business on the part of those interested the concern has grown rapidly. Just before the war an extensive office addition to their plant was completed, mention of which was made in this paper, and shortly before that their plant doubled. Even with these increments to their plant production has not kept pace with the demand for their machines. To meet this demand they have now nearly completed an addition which will practically double their present capacity. On another page is an illustration showing the building with this addition and herewith is a view of their present building before the extension was added. The building is a combination of brick, reinforced concrete and slow burning construction, an expansion of their regular building lay-out. For further expansion ample provision has been wisely made.

Many visitors have commented on the white paint used throughout the works being kept so fresh and that a machine shop can be maintained so clean. Each man has an individual locker and wash bowl and other personal equipment. Supplementing the adequate fire department of the city, all the buildings are supplied throughout with an automatic sprinkler system and extra hose connections. Fire proof vaults appear to be of sufficiently liberal size to provide for storage for some years.

Users of their machines are undoubtedly greatly interested in their manufacture and the writer is assured from the hospitality bestowed upon him when recently visiting their plant that such callers are always most welcome.

Although knowledge of their machines by users appears so general and seems to need no further elaboration, we cannot pass without touching on this point. Aside from their machines being used for seaming, hemming, and edge finishing men's, ladies', and children's knit underwear, sweaters and other knitted goods: welting the tops of ladies' stockings, toe closing and mending, visitors are amazed at the large number of other articles which are finished on their machines. To mention a few, finishing the edges of blankets, ribbons, leather novelties, ladies' dress shields, for seaming ladies' muslin underwear, house dresses, baby clothes, etc. Their machines are used in fact for finishing all kinds of knitted and woven fabrics.

The younger generation taking up this business represents the great-great-grandchildren of its founder. It is of interest to note that the founder, at one time in the knitting business, built the first building in this country, in the year 1837, which was used exclusively for manufacturing knit goods on power machines and the business was pursued by the family continuously until about ten years after they made their first overedging machines, which was in the year 1877.

In New York City, Philadelphia, Baltimore, San Francisco and Chicago, offices and salesrooms are maintained. Traveling men cover other sections not near these centers. Branch offices are extended as opportunity offers. Catalogues and samples are cheerfully furnished upon request.

The Motor Drive for Knitting Mills.

BY G. E. CHAPIN.

Rising costs of labor and materials, without an equivalent increase in prices received for finished product, have cut the manufacturer's margin of profit to such an extent that he must necessarily eliminate insufficient methods of production.

The electric motor drive is being adopted as the motive power in many branches of the textile industry because of the greater efficiency obtained from such power in addition to its general advantages of safety, neatness, simplicity and adaptability.

New mills are being laid out for electric service and old mills are being changed over from their former equipment. Many mills finding themselves without power for additional equipment which they plan to install, unless a new engine is provided, have found in the local electric company a means of quickly and economically obtaining the needed additional power.

Overhead shafting and pulleys with possible projecting set screws; the myriads of belts which, under the best of conditions frequently require adjustment, and jack shafts on floors or walls, are all elements of danger and all are eliminated by the electric motor.

The longer the line shaft and the greater the number of belts required, the less efficient is the motive power. It is true that the modern steam engine and internal combustion engines have been brought to a high degree of perfection and efficiency in themselves, but the losses due to friction seriously decreased the net efficiency—the power actually transmitted to the machine. One short belt or direct or geared shaft is all that lies between the electric motor and the machine to be driven.

The shutting down of the engine or trouble with the main power belt means the stoppage of the entire plant; trouble in line shaft, counter-shaft, or any of the belting operated thereby, means the stopping of from one machine to an entire floor. Interruptions in the continuity of electrical energy are so infrequent and of such short duration as to be negligible. A motor will run year after year with no further attention than necessary oiling.

The relative cost of operation of the two systems cannot be determined in a general way to cover all cases and all conditions. Each factory presents its own problem and this question must be settled by a study of each individual case.

The constant drip of oil from neglected boxes keeps the floor of the mill unclean. The air currents created by large numbers of swiftly moving belts causes lint, dust and fine particles to be suspended in the air, and these are inhaled by the workmen or deposited upon all exposed surfaces from floor to ceiling.

General uncleanliness of a workroom induces employees to neglect the machines, allow rubbish to accumulate and merchandise in process of manufacture to be scattered promiscuously over the floor, obstructing the free movement of employees and reducing their efficiency. A clean, neat, light, cheerful workroom means contented, efficient help.

Manufacturers of electrical appa atus have given the subject of motor drive in textile mills, exhaustive study, which has resulted in a complete line of induction motors of both alternating and direct current types especially adapted for this service.

There are three methods of employing motors in plants of this class: first—each room or department may be operated by a single motor; second—the machines in each room or department are divided into groups, each group being driven by a single motor; and third—by applying an individual motor to each machine.

The first method is frequently employed in converting an old mill to electric drive, as it enables the manufacturer to utilize the old counter shafts and belts. It is open to some of the objections which apply to the engine as the source of power, but has many advantages in its favor.

The second method (group drive) is far more flexible and natural, since standard practice in knitting mills has been to connect from 10 to 50 machines by light belts to a common shaft. It has the further advantage that the required horsepower to operate a given group of machines can be closely ascertained, and a motor selected so that it will run at approximately full load efficiency.

The electric motor has a perfectly uniform turning movement, and belt slippage, shaft friction, etc., being wholly eliminated, the machines are driven at absolutely constant speed. This item is of great importance in connection with ribbers and flat knitting machines where intermittent reductions and surges of power derange the adjustment of the dial, tucking or other cams, causing small holes, or "bird-eyes" in the finished product. While the most frequent cause of needle breakage is undoubtedly inequality in the yarn, a jerky feed greatly increases the trouble from this cause, whether spring or latch needles are used.

In cases where change in the quality or size of yarn or different parts of a garment require higher or lower speeds, this is readily, instantly and accurately adjusted by the simple turning of a rheostat handle placed in such a position as to be easily accessible to the operator.

All auxiliary machines in a knitting mill lend themselves as readily to the motor drive; sewing machines, cone winders, elevators, presses and preparatory machines should be equipped with motors. They are small compact, dust and oil-proof, and their general neatness of appearance, their simplicity and adaptability alone are sufficient to recommend their adoption.—*Sweater News.*

Market for Bathing Suits in Uruguay.

Bathing suits are extensively used in Uruguay during the summer months from November to March. There is a demand for both men's and women's suits. In addition to beaches in the immediate vicinity on Montevideo, there are summer resorts at other points on the coast, and Uruguay is visited during the bathing season by persons from other parts of South America. The best demand is for cotton and woolen suits, and dealers familiar with conditions there and in the United States state that there ought to be a market at Montevideo for American bathing suits and that American styles should prove acceptable. A firm in Montevideo [whose name can be obtained at the Bureau of Foreign and Domestic Commerce or its district or cooperative offices by referring to file No. 90040] is interested in this line of goods. This firm, which has trade connections in the United States, may be addressed in English.

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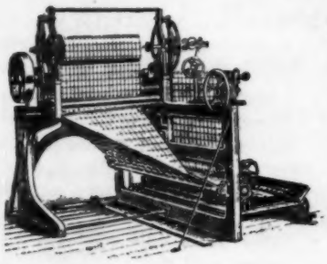

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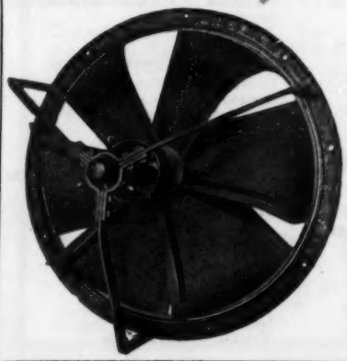

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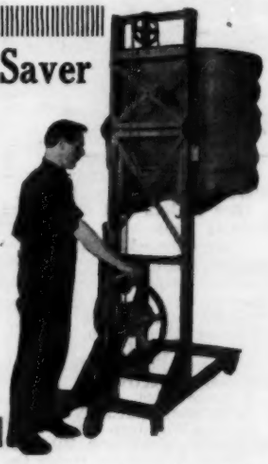

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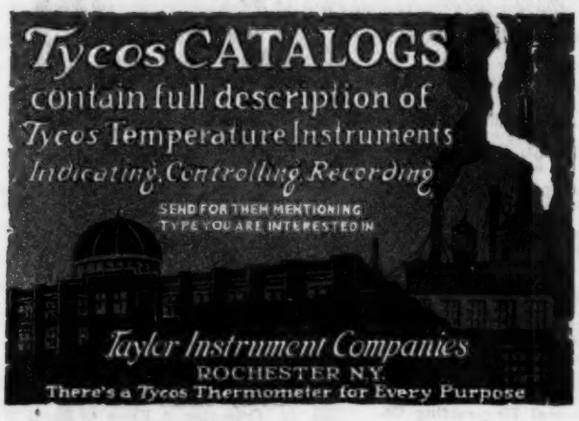

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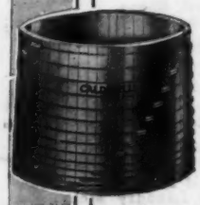

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Western Electric Co.
Westinghouse Electric & Mfg. Co.

Electric Trucks (Inter-Transportation).
(See Trucks—Electric.)

Electrical Wiring & Installing.
(See Electrical Contractors.)

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Collins, J. D.
Hunt Co., C. W.
Link-Belt Company.
Seeger-Walraven Co.

Enamel (Mill White)
(See Paint—Mill White).

Engineers, Consulting.
(See Architects.)

Engineers (Electrical).
See Electrical Contractors.

Engines (Oil, Gas and Gasoline).
Seeger-Walraven Co.

Engines (Steam).
Allis-Chalmers Mfg. Co.
Collins, J. D.
Lombard Iron Works & Supply Co.
Schofield's Sons Co., J. S.
Seeger-Walraven Co.
Toomey, Frank.
Walsh & Weidner Boiler Co.

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Lunkenheimer Co.

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(See Cloth Expanders.)

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General Fireproofing Co.

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Tolhurst Machine Works.

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Carter Electric Co.
General Electric Co.
Howard & Morse.
Lincoln Electric Co.
Western Electric Co.
Westinghouse Elec. & Mfg. Co.

Fans—Conveying, Power and Exhaust.
(See Blowers and Blowing Systems.)

Feed Water Purifiers.
(See Walter Softeners.)

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Smith & Furbush Mach. Co.

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Anchor Post Iron Works.

Filing Cabinets & Systems.
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Manufacturers Equip. & Eng. Co.

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(See Water Softening.)

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(See Dyers, Bleachers and Finishers.)

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Electro Bleaching Gas Co.
Electric Smelting & Alum. Co.
Grasselli Chemical Co.
Jordan, Jr., W. H. & F.
Kali Mfg. Co.
Klipstein & Co., A.
Madero Bros.
Marden, Orth & Hastings Corp.
Metz & Co., H. A.
National Aniline & Chemical Co.
Seydel Mfg. Co.
Warren Soap Mfg. Co.
Wolf & Co., Jacques.

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Fyr-Fyter Co.
Missouri Lamp & Mfg. Co.
Pyrene Mfg. Co.

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(See Hose—Fire).

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(See Paint—Fireproof.)

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(See Hospital Equipment.)

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Saco-Lowell Shops.
Schofield's Sons Co., J. S.
Smith & Furbush Machine Co.
Southern Spindle & Flyer Co.

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Howard & Bullough.
Leigh & Butler.
Saco-Lowell Shops.
Southern Spindle & Flyer Co.

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Windle, J. E.

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Manufacturers Equip. & Eng. Co.
Rundle-Spence Co.

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(See Clutches—Friction.)

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American Laundry Mchy. Co.

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Manufacturers Equip. & Eng. Co.

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Economy Fuse & Mfg. Co.
General Elec. Co.
Western Electric Co.

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Roy & Son Co., B. S.

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Smith & Furbush Mach. Co.

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Diamond State Fibre Co.

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Taylor Instrument Co.

Gauges (Mercury Column Absolute Pressure).
Taylor Instrument Co.

Gauges (Oil).
Lunkenheimer Co.

Gauges (Water).
Lunkenheimer Co.

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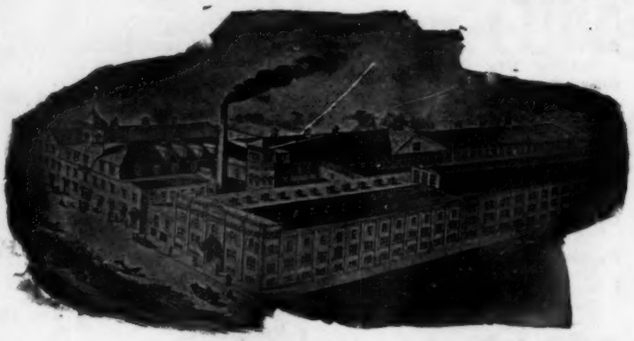

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3 Rolls 1½ in. Cotton Bandages
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2 Rolls 2½ in. Cotton Bandages
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3 Cartons Absorbent Cotton
3 Cartons 1 yd. ea. Sterile Gauze
2 Cartons Absorbent Lint
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1 Box Picric Acid Gauze for burns
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8 oz. Phenieric Emollient for burns
8 oz. Bottle Antiseptic Soap
8 oz. Bottle 4% Boratic Acid Sol.—for eye wash and burns
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1 Bottle Peroxide Hydrogen
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1 Pair Scissors
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Whiton Mch. Co., D. E.

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(See Lubricators.)

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Draper Corporation.

Heddle Frames.
Crompton & Knowles Loom Wks.

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Link-Belt Company.
Seeger-Walraven Co.

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(See Boards.)

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(See Size Kettles.)

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(See Bleaching Kiers.)

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Boss Knitting Mach. Works.
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General Machine Works.
Hemphill Mfg. Co.
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Stafford & Holt.
Smith & Furbush Mach. Co.
Wildman Mfg. Co.

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Tolhurst Machine Works.

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(See Belting—Leather.)

Linen Yarns.
(See Yarns—Linen.)

Link Belting.
(See Belting—Link.)

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(See Chlorine.)

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Link-Belt Company.

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Manufacturers Equip. & Eng'g Co.

Logwood Extract.
(See Dyestuffs and Chemicals.)

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Draper Corporation.
Saco-Lowell Shops.
Schofield, Wm. & Co.
Stafford Co., The

Loom Harness Straps.
Graton & Knight Mfg. Co.

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Dixon, Jos., Crucible Co.
Kellogg & Co., E. H.
Swan & Finch Co.

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Lunkenheimer Co.

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(See Straps—Lug.)

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Windle, J. E.

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Lincoln Electric Co.
Western Electric Co.
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(See Architects and Engineers).

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(See Paint—Mill White.)

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(See Lubricators).

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Smith & Furbush Mach. Co.

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Smith & Furbush Mach. Co.

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Garland Mfg. Co.
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Seeger-Walraven Co.
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Reilly Mfg. Co., J. J.
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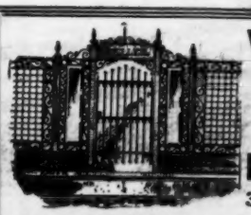

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(See Finishing & Sizing Materials.)

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Cone, Frederick H.
Grasselli Chemical Co.
Jordan, Jr., W. H. & F.
Madero Bros.
Marden, Orth & Hastings Corp.

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Baltic Chemical Co
Bosson & Lane
Brown & Bro., B.
Grasselli Chemical Co.
Jordan, Jr., W. H. & F.
Kali Mfg. Co.
Madero Bros.
Marden, Orth & Hastings Corp.
Seydel Mfg. Co.
Wolf & Co., Jacques.

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(See Tanks, Towers, Etc.)

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(See Finishing and Sizing Materials.)

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(See Engines—Steam.)

Steam Hose.
(See Hose—Steam.)

Steam Pumps.
(See Pumps—Steam.)

Steam Traps.
(See Traps—Steam.)

Steel Coatings.
General Fireproofing Co.

Steel Doors, Windows, Partition, Etc.
General Fireproofing Co.
Lupton's Sons Co., David.

Stencils & Stencil Papers.
(See Stamps and Stencils.

Stencil Brushes.
(See Marking Pots and Brushes.)

Stencil Machines.
(See Stamps and Stencils.)

Stop Motion.
Crompton & Knowles Loom Wks.
Draper Corporation,
Wildman Mfg. Co.

Straps—(Leg).
Freadrich Belting Co.
Graton & Knight Mfg. Co.

Tachometers.
The Foxboro Company.
Veeder Mfg. Co.

Tallow.
(See Finishing Material.)

Tanks, Towers and Tubs.
Allen Sons Co., Wm.
Caldwell Co., W. E.
Casey-Hedges Co.
Lombard Iron Works & Supply Co.
Phila. Drying Machinery Co.
Salem Iron Works.
Textile Finishing Machinery Co., The.

Tape and Tape Moistening Machine for Slashers.
Acme Gummed Products Co.

Tapes and Braids.
American Textile Banding Co., Inc.
Barber Mfg. Co.
Weimar Brothers.

Telephones—Inter.
National Scale Co.

Temples.
Draper Corporation.

Tenters.
Butterworth & Sons Co., The.
Textile Finishing Mach. Co.

Thermometers (All kinds).
Taylor Instrument Co.

Thermometers (Wet and Dry Bulb).
The Foxboro Company.

Thin Place Preventers.
Draper Corporation.

Thread Guides.
Palmer Co., The I. E.

Tiering Machines.
Collins, J. D.

Time Clocks (Portable).
Harding Bros., Inc.

Time Recorders.
Hardinge Bros., Inc.
Howard Time Recording Co.

Toilets.
Cement Products Co.
Kaustine Co., Inc.
Vogel Co., Jos. A.

Towers.
(See Tanks and Towers.)

Transmision (Power).
(See Power Transmission Machinery.)

Traps (Return Steam).
Morehead Mfg. Co.

Trucks—Auto.
Federal Motor Truck Co.
White Co., The

Trucks—Electric—Inter.
Automatic Transportation Co.
Hunt Co., C. W.

Trucks—Elevating—Inter.
Cowan Truck Co.
Hunt Co., C. W.
National Scale Co.

Trucks—Fibre (Inter, Etc.).
American Vulcanized Fibre Co.
Diamond State Fibre Co.
Fibre Specialty Co.
Keystone Fibre Co.
Lane & Bro., W. T.
Leatheroid Mfg. Co.
Spaulding & Sons, J.
Standard Fibre Co.

Tubes—Cloth Protecting.
Southern Novelty Co.

Turbines (Steam).
Allis-Chalmers Mfg. Co.
General Electric Co.
Seeger-Walraven Co.
Western Electric Co.
Westinghouse Elect. & Mfg. Co.

Twisting Machinery.
Draper Corporation.
Howard & Bullough.
Leigh & Butler.
Saco-Lowell Shops.
Smith & Furbush Mach. Co.

Unions (Bronze).
Lunkenheimer Co.

Valves (Angle, Globe and Cross).
Foster Engineering Co.
Lunkenheimer Co.

Valves (Anti-Acid).
Foster Engineering Co.
Lunkenheimer Co.

Valves (Blow-off).
Foster Engineering Co.
Lunkenheimer Co.

Valves (Check).
Foster Engineering Co.
Lunkenheimer Co.

Valves (Gate).
Foster Engineering Co.
Lunkenheimer Co.

Valves (Non-return Stop).
Foster Engineering Co.
Lunkenheimer Co.

Valves (Pop-Safety).
Foster Engineering Co.
Lunkenheimer Co.

Varnishes.
Arco Co.
General Fireproofing Co.
Peaslee-Gaulbert Co.
Ullman-Philpott Co.
Wadsworth, Howland & Co.

Ventilating Apparatus.
Carrier Eng. Corp.
General Electric Co.
Howard & Morse.
New York Blower Co.
Sargent's Sons Co., C. G.
Tolhurst Mch. Co.
Western Electric Co.

Warp Tying Machines.
Barber-Colman Co.

Warpers and Warping Machinery.
Cocker Machine & Fdry Co.
Crompton & Knowles Loom Wks.
Draper Corporation.
Howard & Bullough.
Saco-Lowell Shops.
Salem Iron Works.
Smith & Furbush Mach. Co.

Washers (Cloth).
American Laundry Machinery Co. The
Butterworth, H. W & Sons Co.
Cocker Mch. & Foundry Co.
Philadelphia Drying Mchy. Co.
Phila. Textile Mchry. Co.
Salem Iron Works.
Textile Finishing Mchry Co.

Washers, Graphite and Bronze.
Bound Brook Oil-less Bearing Co.

Washers, Leather.
Graton & Knight Mfg. Co.

Washers, Wooden, Oil-less.
Bound-Brook Oil-less Bearing Co.

Waste (Purchasers of).
Valley Waste Mills.

Waste Machinery (Cotton).
Howard & Bullough.
Leigh & Butler.
Saco-Lowell Shops.
Sargent's Sons Co., C. G.
Schofield Co., Wm.
Smith & Furbush Mach. Co.

Water Columns.
Lunkenheimer Co.

Water Coolers (Drinking).
(See Fountains—Drinking.)

Water Cooling Ponds.
(See Cooling.)

Water Softeners.
Refinite Co.
Scaife & Sons Co., Wm. B.

Waterproofing Machinery.
Butterworth, H. W. & Sons Co.
Textile Finishing Machinery Co. The

Weaving.
(See Yarn Manufacturers.)

Welding Apparatus (Electric Arc.)
Lincoln Electric Co.
Westinghouse Elec. & Mfg. Co.

Welding Apparatus (Oxy-acetylene)
Bird-Wilcox Co., Inc.
Burdett Oxygen Co.
Davis-Bournonville Co.
Prest-O-Lite Co.

Welding—Job.
Bird-Wilcox Co., Inc.

Wheels—Fibre.
American Vulcanized Fibre Co.
Diamond States Fibre Co.
Fibre Specialty Co.
Keystone Fibre Co.
Leatheroid Mfg. Co.
Spaulding & Sons, J.
Standard Fibre Co.

Whistles (Steam).
Lunkenheimer Co.

Winding.
Aberfoyle Mfg. Co.
Home Bleach & Dye Works.

Winders.
Crompton & Knowles Loom Wks.
Firsching, J. A.
Howard & Bullough, American Machine Co.
Leigh & Butler.
Saco-Lowell Shops.
Smith & Furbush Mach. Co.
Stafford Co., The
Windle, J. E.

Windows—Steel.
Lupton's Sons Co., David.

Wire Glass.
(See Glass—Wire.)

Wiring (Electrical).
(See Electrical Contractors).

Wood Preserver.
Arco Co.
Certain-teed Products Corp.
General Fireproofing Co.
Peaslee-Gaulbert Co.
Wadsworth, Howland & Co., Inc.

Wood Pulleys.
Cresson-Morris Co.

Woolen Machinery.
Butterworth, H. W. & Sons Co.
Crompton & Knowles Loom Wks.
Draper Corporation.
Leigh & Butler.
Schofield Co., Wm.
Phila. Drying Machinery Co.
Phila. Textile Machinery Co.
Sargent's Sons Corp., C. G.
Stafford Co., The
Smith & Furbush Mach. Co.
Textile Finishing Machinery Co., The

Yarn Manufacturers.
Aberfoyle Mfg. Co.
Gray Mfg. Co.
Parkdale Mills, Inc.

Yarns (Mercerized).

Yarn Dealers and Commission Merchants).
(See Cotton Cloth Commission Merchants and Dealers.)

SEYDEL MANUFACTURING COMPANY
JERSEY CITY N. J.

SIZOL

Makes the Strongest, Smoothest Warps; the Best Cloth and Least Seconds.

Southern Representatives:
S. C. Thomas
George Witherspoon
Spartanburg, S. C.

The American Audit Co.

F. W. LAFRENTZ, C. P. A., Pres. Telephone Main 872
THEO. COCHEU, Jr., C. P. A., Vice Pres. Cable Address
A. F. LAFRENTZ, Secy. & Treas. Amdit New York

NEW YORK— 100 Broadway (Home Office)
33rd St. and 5th Ave., Waldorf-Astoria.
ATLANTA BRANCH—1013-1017 4th National Bank Building.
CHICAGO—Marquette Building.
BOSTON—Exchange Building.
PHILADELPHIA—Bellevue Stratford.
BALTIMORE—Keyser Building.
WASHINGTON, D. C.—Colorado Building.
NEW ORLEANS—Maison Blanche.
SAN FRANCISCO—Mills Building.
RICHMOND, VA.—American National Bank Building.
LONDON, E. C.—50 Gresham St., Bank.
MILWAUKEE—Plankinton Bank Building.
SCRANTON—Title Building.
Specialists in Cost Systems and Manufacturing Accounts.

C. B. BIDWELL, C. P. A., Resident Vice-President

J. E. SIRRINE,

Mill Architect and Engineer

Specialty

Textile Mills and Water Power Developments

GREENVILLE, S. C.

Shafts, Pulleys, Hangers, Belting, Packing, Lacing,

BOILERS

For Mills and Public Works, Low Prices.

Refer Chadwick, Hoskins, Woodside, Chiquola, Sibley, King, Enterprise, Langley, Piedmont and Pelzer Mills.

High Pressure Boilers built to Insurance Specifications. Rivet Holes Punched or Drilled. Pumps, Injectors, Pipe Mill Supplies, Castings.

LOMBARD Foundry, Machine, Boiler Work, and Supply Store,
AUGUSTA, GEORGIA

Proper Locations for Cotton Mills

United States Census figures show that since 1880 the consumption of cotton in mills of the cotton growing states has increased 1,502 per cent, as compared with an increase of only 93 per cent in all other states. In the twelve months ended August 31, 1916, Southern mills consumed 675,731 more bales of cotton than the mills of all other states. Three-fourths, or 10,000,000, of the total cotton spindles in the cotton growing States are served by the Southern Railway System. Of the 200 knitting mills in the South over 125 are located along the Southern Railway System. Nearly all the Southern woolen and silk mills are also on Southern Railway System tracks.

There is a reason for this, and it is not difficult to understand.

The Southern Railway System lines enter and serve most completely those portions of the South where the textile industry is the greatest success, because there are found all the conditions which make for successful manufacture—the proper transportation facilities, the ease with which the raw materials and the needed fuel may be secured, the supply of good labor, the pure water, the low cost of power, and favorable local conditions.

Not only for textile plants but for all other industries the best advantages will be found in this territory.

If you have a plant to locate let us take up with you the question of the proper location. Your plans will be held confidential. Our knowledge of conditions at various points and our experience in locating other mills and the time of our agents in making special investigations are at your service, if desired.

M. V. RICHARDS
COMMISSIONER
Room 131
SOUTHERN RAILWAY SYSTEM
Washington, D. C.

ANTI-CORROSIVE CYLINDER OIL

TRY A BARREL FOR 60 DAYS

If it does not come up to your standard of what a good lubricating oil should be, and you consider that it is not worth our price—put your own value on it and remit on that basis. Isn't that a fair proposition? "A. C. C." will pare down your oil and cylinder repair bills—save your piston packing, too. It has been doing this for forty years, it will effect such a saving now—just give "A. C. C." a chance.

● May we go into the subject with you?

E. H. KELLOGG & CO.
243 SOUTH ST. NEW YORK

Classified Opportunities.

Positions Open.

WANTED—A first-class Carding Overseer who is competent to handle waste work on woolen system cards. This is a good room and a good job, located in a good section of a Southern State. Position must be filled immediately, therefore a prompt reply is necessary. Address Box 369, care COTTON.

Positions Wanted.

POSITION WANTED—As Superintendent by young man 29 years old and married. Has had 7 years experience in practical mill work as overseer of carding a large part of the time. Has also had charge of a combing department. Is familiar with the manufacture of combed yarns, both fine and coarse, and all American makes of machinery, as well as some foreign. Is now employed, but desires to change to secure improved position. Is a textile graduate of a Southern textile school, and is familiar with designing and fancy weaving. Address Box 367, care COTTON.

POSITION WANTED—As overseer of Spinning or Twisting, by a man with 13 years' experience in cotton mills, 9 years as overseer of spinning. Is 37 years old and married. Experience has been all on heavy yarns for the manufacture of heavy ducks. Familiar with Saco-Lowell and Howard & Bullough machinery. Is at present employed, but would be interested in a better position and could accept it on 10 days notice. Does not care to go outside of Georgia. Address Box 368, care COTTON.

POSITION WANTED as superintendent or manager. A man with wide experience, over 20 years in many large Northern mills, desires position, preferably in the South. Experienced on all kinds of plain and fancy goods, cotton, silk, linen, and some wool. Have acted as purchasing agent for a number of concerns and have taken charge of the erection and organization of mills for both fine and coarse yarns, combed and carded. Capable of doing designing where necessary. Familiar with all kinds of machinery and power plants. Very best of references exchanged. Address Box 312, care COTTON.

POSITION WANTED by Georgia mill man as superintendent. Have had 17 years experience on white and colored goods and all kinds of textile machinery. Now employed but desire to change to position where there is chance for promotion. References from several well known mill men. Age 35 and married. Address Box 93, care COTTON.

POSITION WANTED as Overseer of Spinning or Twisting, in some Georgia mill. Have had 13 years experience on all heavy duck, and with Saco-Lowell, H. & B. and other machinery. Good references. Married and 37 years of age. Address Box 97, care COTTON.

RATES:

WITHOUT DISPLAY.

"Positions Wanted" 3 cents per word per insertion. Minimum charge 50 cents. Payable in advance.

"Positions Open" and other undisplayed advertisements, 4 cents per word per insertion. Minimum charge $1.00. Payable in advance.

(When replies are to be received in our care, allow four words for box address.)

DISPLAYED.

"For Sale" and all other advertisements using bold-face type or otherwise displayed, $2.00 per inch per insertion.

Rates for larger spaces furnished on application.

Wanted.

WANTED

Children's Hosiery.

An inquiry has been received for 1.000 cases of children's ribbed hose in sizes 5 to 10, at a price of 85 cents to 87½ cents a dozen. Any mill in a position to consider a proposition of this character should communicate with Box 28, care COTTON.

For Sale.

Used Machines For Sale

F. O. B. Atlanta

One 20" x 12' Lathe.
One 32" x 12' Lathe.
Two 16" x 10' Lathe.
One 16" x 8' Lathe.
One 24" Aurora Drill Press with tapping attachment.
One new 1½" Single Head Landis Bolt Cutter.
New Marvel Power Hack Saws in stock for immediate delivery.
We can equip you in either new or used machinery. Write us.

Seeger-Walraven Company
Machinery and Mill Supplies.
38 W. Alabama St., Atlanta, Ga.

For Sale

A BARGAIN IN FINE TOOLS

The following tools are from a private set and have seen little, and in some instances, no usage. The prices shown are the regular list price which will be discounted 33 per cent on single tools or a special price made on the whole outfit. Tools will be shipped by express C. O. D. with privilege of examination:

1 height gauge attachment, $1.75.

1—4" Starrett micrometer caliper square No. 28, $11.75.

1 Brown & Sharpe Venier dept gauge, No. 600, $12.00.

1—8" Brown & Sharpe venier height gauge No. 585, $31.75.

1—8" Brown & Sharpe vernier caliper No. 570, $25.75.

1 Brown & Sharpe inside micrometer caliper No. 250—.200" to 1", $6.15.

1 Brown & Sharpe inside micrometer caliper No. 254, 1" to 2", $7.15.

1 lathe indicator with attachments, giving readings in 1/1000 and 1/2000 of an inch, $15.00.

All these tools are in cases except the height gauge attachment.

Apply to Box 17, care SOUTHERN ENGINEER.

New and Second Hand

ENGINES

Corliss Automatic and Slide Valve

BOILERS

Pumps, Hoisting Engines, Gas and Gasoline Engines.

MACHINE TOOLS

Lathes, Planers, Shapers, Drill Presses, etc.

WOOD WORKING

Planers, Molders, Band Saws, etc.

ELEC. MACHINERY

Dynamos and Motors

AND SUPPLIES OF ALL KINDS

FRANK TOOMEY, Inc.,

127-31 N. Third St.

Philadelphia, - Pennsylvania

Mr. Glancy
of
The MARQUETTE
18th St. and Washington Ave.
St. Louis

A Refined Hotel for Your Mother, Wife and Sister

Rates:
Room with Private Bath
One Person
$1.50, $2.00, $2.50, $3.00
Two Persons:
$2.50, $3.00, $3.50, $4.00
Rooms without bath, $1 and $1.50

500 ROOMS

FIRE-PROOF

EURO-PEAN PLAN

$1.50 A DAY UP.

Lexington HOTEL
CHICAGO
MICHIGAN BOULEVARD AT 22nd ST.

Really large well furnished rooms at reasonable rates. Much favored by Southern business men and their families. Excellent restaurants. Ten minutes from the Loop. Write for reservations.

Meet me at the Tuller for Value, Service, Home Comfort
***New* HOTEL TULLER**
Detroit, Michigan.
Center of business on Grand Circus Park. Take Woodward car, get off a Adams Avenue.
ABSOLUTELY FIREPROOF

200	Rooms,	Private Bath,	$1.50	Single,	$3.00	up	double
200	"	"	2.00	"	4.00	"	"
100	"	"	2.50	"	4.50	"	"
100	"	"	3.50 to 5.00	"	5.00	"	"

Total 600 Outside Rooms.
ALL ABSOLUTELY QUIET
Two Floors—Agents' Sample Rooms
New Unique Cafes and Cabaret Excellente

The House of Taylor

400 Baths
600 Rooms

HOTEL MARTINIQUE
Broadway, 32d St., New York

One Block from Pennsylvania Station. Equally Convenient for Amusements, Shopping or Business.

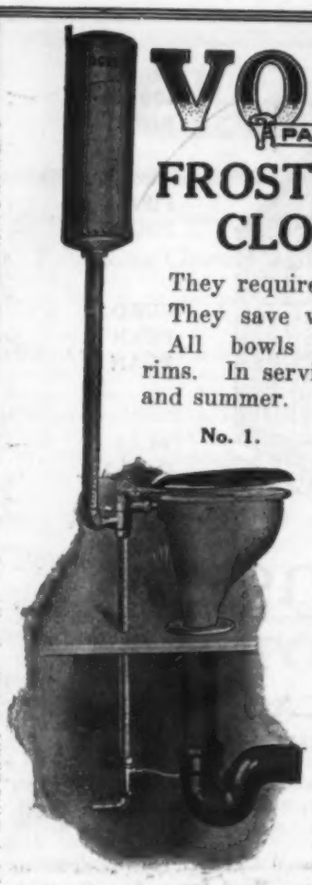
157 Pleasant Rooms, with Private Bath,
$2.50 PER DAY
257 Excellent Rooms, with Private Bath, facing street, southern exposure,
$3.00 PER DAY
Also Attractive Rooms from $1.50.
The Restaurant Prices are Most Moderate.

VOGEL PATENTED

FROST PROOF CLOSETS

They require no pit.
They save water.
All bowls have enameled rims. In service daily, winter and summer.

No. 1.



OVER 250,000
Giving
Satisfaction in All Climates

The ideal water closets for Factories and Mill Villages, where thousands have been installed.
The most durable water closets made — excepting none.

Every Fixture Tested Under Hydraulic Pressure Before Leaving Factory.

INSIST ON GETTING THE VOGEL

For Sale by Jobbers Everywhere.

JOSEPH A. VOGEL CO.

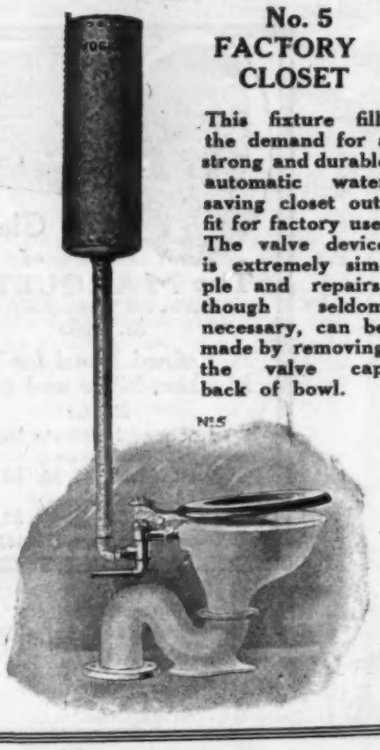
Factory and Office at
WILMINGTON, DEL.

Warehouses at Baltimore, Md., and St. Louis, Mo.

VOGEL PATENTED

No. 5 FACTORY CLOSET

This fixture fills the demand for a strong and durable automatic water saving closet outfit for factory use. The valve device is extremely simple and repairs, though seldom necessary, can be made by removing the valve cap back of bowl.



CONCERNING YOU

and the advertisements in this journal

ADVERTISING is the connecting link between the mill man and an ever advancing standard of efficiency. The advertising of an improved product has stimulated other manufacturers toward still more improved articles. The result is progress in the textile industry.

The advertisements in COTTON bring equal opportunity to every mill man. The mill man in a remote district can look over the advertising pages and thereby be in nearly as close touch with textile mill modernity as his brother in the larger cities.

The mill man who reads the advertisements and keeps in touch with the best products for his mill is worth more to himself and to his mill.

So read the advertisements. It's a habit that will *"get you there."*

THE CLEMSON AGRICULTURAL COLLEGE
Clemson College, S. C.
April 23, '17.
Mr. L. P. Kilgore,
Southern Sales Manager,
Kaustine Company, Inc.,
Greenville, S. C.
Dear Sir:-
The "Kaustine" toilet, installed by you, in the
Calhoun-Clemson school building, has been in regular use
since January 2, 1917. It has proved consistently every
claim made by your company and is the very best system of
sewage disposal of which we know.
We have had tests made in the bacteriological
laboratories at Clemson College and in every case we have
had added evidence to substantiate the claims made by you.
The system is far superior to the water toilet and in every
way most satisfactory. The "Kaustine" system is absolutely
odorless, is sanitary and renders sewage matter so that it
is not only germ free but that it may be an economical factor
as a fertilizer material without the slightest danger of soil
contamination. We cheerfully give our heartiest endorsement
to the "Kaustine" system.
Board of Trustees for
Calhoun-Clemson
School District.
Chairman

Kaustine Waterless Toilet Systems
Endorsed by Clemson College

THE letter speaks for itself. In the face of the facts, is it any wonder that many big cotton mills have installed hundreds of Kaustine Waterless Toilet Systems in their villages?

We believe it won't be long before every institutional village is equipped with **Kaustine Toilets.** We believe a proper presentation of the facts to mill owners cannot fail to bring this condition about.

Kaustine

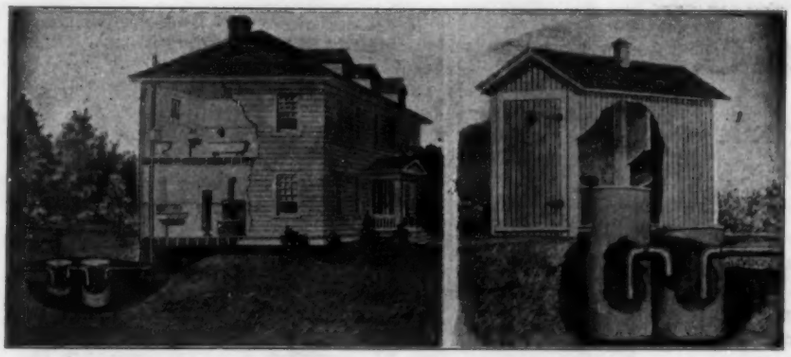
Waterless Toilets

do away with the insanitary outhouse. The outhouse is a breeding place for disease. It promotes lax habits on the part of employes. It decreases their efficiency. It hasn't one excuse for existing because its cheapness of erection and maintenance is many times discounted by losses due to the sickness, laxity and inefficiency caused by it.

Kaustine Toilets require neither water or sewer connections. They are easily installed anywhere—in homes, factories, schools, public buildings. They come in single and multiple units. Their cost is most reasonable and the upkeep is practically nothing.

We would like to send you the full Kaustine facts. We know they will prove both interesting and instructive reading. **Drop us a card asking for the Kaustine Book.**

KAUSTINE COMPANY, Inc.
Greenville, South Carolina



No. 1, "SANISEP" System for use with running water.

No. 2, "SANISEP" System for two families. No running water required.

Patented

"SANISEP" Portable Sewerage Systems

(Trade Mark Reg.)

THE perfect System for Mill villages, suburban homes, and schools with or without running water. Made of reinforced concrete with solid bottoms and thoroughly waterproofed. All scavenger work done away with, no chemicals required, flyproof and odorless.

ENDORSED BY ALL HEALTH AUTHORITIES

Write for Catalogue

CEMENT PRODUCTS COMPANY
WILMINGTON, N. C.

East Point, Atlanta, Ga. | Union Trust Bldg., Charleston, W. Va. | 328 Chestnut St., Philadelphia | Oliver Bldg., Pittsburgh, Pa.

Commission Merchants, Yarn Dealers, Cotton Dealers and Brokers, Etc.

Weimar Bros.

Phone Connections
Works, 2046-48 Amber Street,
PHILADELPHIA, PA.

MANUFACTURERS OF
Cotton Mercerized Tapes, Spool Tapes, Bindings and Narrow Fabrics for Underwear and other Trades.

A. D. Salkeld & Bro.
COMMISSION MERCHANTS
COTTON AND WORSTED YARNS
366 BROADWAY Cor. Franklin St. NEW YORK
DEPT. FRED'K VIETOR & ACHELIS.

WOODWARD, BALDWIN & CO
DRY GOODS
COMMISSION MERCHANTS
43-45 WORTH STREET, NEW YORK

HAVE THAT SAFE FEELING
When buying products advertised in COTTON you can always have that safe feeling that each advertiser is reliable and lives up to the claims made in his advertisement.

PAULSON, LINKROUM & CO.
COMMISSION MERCHANTS
COTTON YARNS
PHILADELPHIA NEW YORK CHICAGO

Amory, Browne & Co.
Boston New York

SELLING AGENTS FOR

Nashau Manufacturing Company	Jackson Company
Indian Head Mills Alabama	Parkhill Manufacturing Company
Samuel A. Crozier & Son	Wauregan Company
Lancaster Mills	Lowe Manufacturing Co.
	Quinebaug Company

B. B. & R. Knight (Export only)

ESTABLISHED 1872
H. & B. BEER
NEW ORLEANS

HENRY BEER EDGAR H. BRIGHT
J. WILLIAM BARKDULL C. MORGAN ABRAMS

MEMBERS OF
New Orleans Cotton Exchange
New Orleans Future Brokers Association
New York Stock Exchange
New York Cotton Exchange
New York Coffee Exchange
New York Produce Exchange
Chicago Board of Trade

Associate Members of the Liverpool Cotton Association

Private Wires to Principal Points

HUGHES FAWCETT
IMPORTER AND COMMISSION MERCHANT
LINEN YARNS
For Weaving, Knitting and all Purposes
TURKEY RED YARNS
For Towel Borders, Towellings and Bleaching Cloth
Linen Jacquard Harness Twine
And Every Description of Linen Thread and Twine
115 Franklin Street, : NEW YORK

QUALITY YARNS

The Best That Nature and Manufacturing Skill Can Produce

GRAY DAWN
QUALITY YARNS
Gray Manufacturing Co.
Gastonia, N.C.

This Label Is Your Protection

It means that every piece of yarn it is attached to must pass an inspection which could not be more rigid. It means that you are buying a yarn which is absolutely uniform throughout. We are so proud of our product that we place this trade-mark on every package or bale of

"GRAY DAWN" QUALITY YARN

It is made from the strongest and most uniform staple, carefully selected from the best combed peeler cotton that money can buy—and it is spun under the supervision of the most skilled help and on the most modern machinery.

Write for samples and prices.

Gray Mfg. Co., Gastonia, N. C.
131 East 23rd Street, New York City.

And for the Best C. P. Reversed Yarn

PARKDALE YARNS ARE THE BEST

Two factors determine the quality of a fine combed reversed yarn—the raw material used, and the way it is spun. Quality knitters quickly discriminate between true quality and its imitation—that's why they ARE Quality Knitters and that's why they demand

"PARKDALE" FINE C.P. YARN

which is made from the finest combed Peeler Cotton, and the methods of production used in its manufacture cannot be improved upon. It is the highest standard in quality, value and service.

Made in all counts and varieties for any purpose.

Write for samples and prices.

Parkdale Mills, Inc., Gastonia, N. C.
131 E. 23rd St., New York City.

Founded 1778

W. H. & F. JORDAN, JR., Inc.

IMPORTERS and EXPORTERS
CHEMICALS and OILS

We Specialize in Chemicals for Hosiery and Underwear Manufacturers.

CHLORIDE LIME
PEROXIDE HYDROGEN
CAUSTIC SODA
SODA ASH
CHLORATE SODA
BI-CHROMATE SODA
BI-CHROMATE POTASH
BLUESTONE
SULPHURIC ACID
LOGWOOD EXTRACT
SUMAC EXTRACT
CUTCH
OLIVE OIL
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The experience of critical operators has shown this popular brand to be the most efficient sizing agent both for additional *weight* and increased *strength* of warp. Penetration accomplishes these important results.

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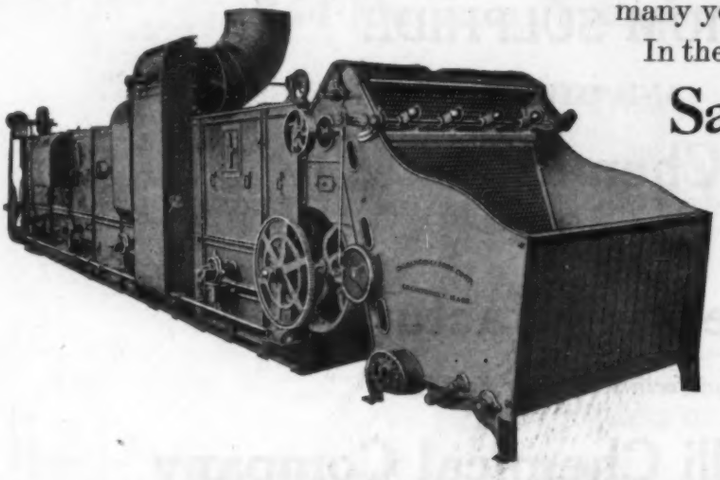

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For drying cotton, linters, wool, hair, flax and other classes of raw material.

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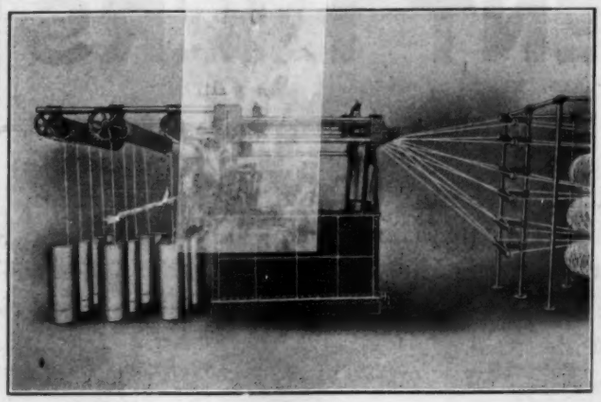

THE above cut illustrates our Single Compartment Warp Dyeing Machine with all iron box. Inside dimensions of this box 6 feet long, 40 inches wide, and 34 inches deep, with overhead carrying the rollers of all iron construction, self contained with the machine, and creel of pipe construction for carrying warps.

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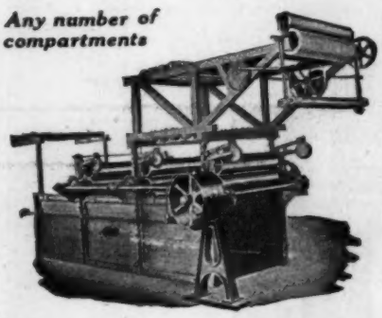
Dye Sulphur, Vat Colors, Cutch or Fustic in this

Any number of compartments



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Long or **Short Chain**, any number of warps. **Piece Goods**, any width.

Bleach in continuous process. **Boil-Out**, or Boil-out and Dye.

Cypress tanks of size to suit. Rolls rubber covered iron, or brass.

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This is just one of the many "Proctor" improvements.

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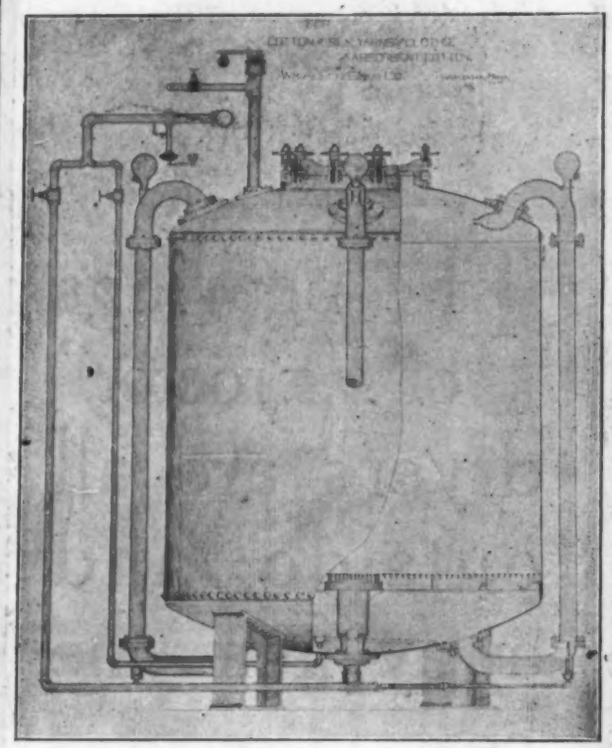
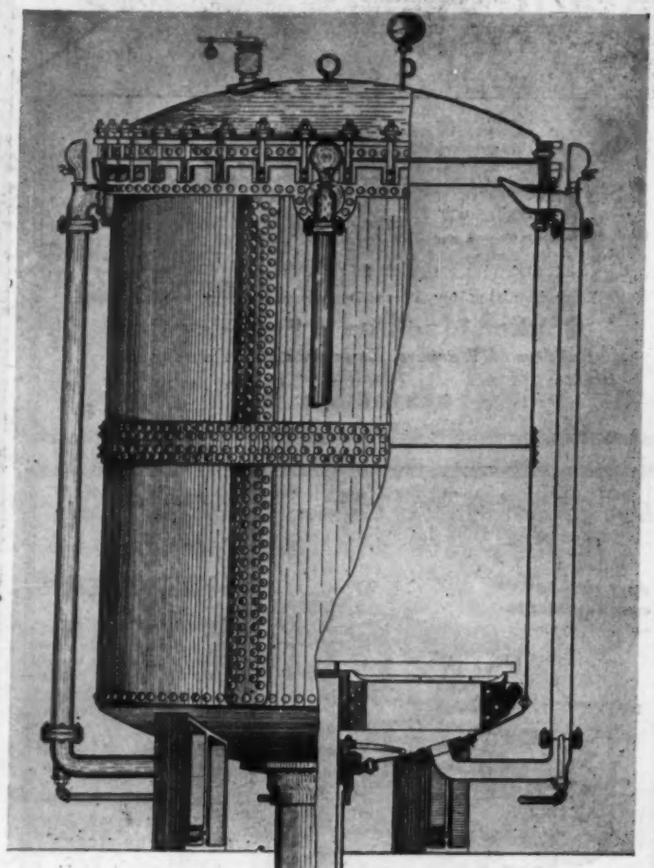


If you desire to improve your present system, and secure more uniform results with a minimum of steam consumption, an Allen Patent Kier will meet every demand for more efficiency and economy.



THERE'S an Allen Patent Kier for every purpose. The type shown above is the "ALLEN INJECTOR" KIER, which is one of the finest injector kiers made. It gives excellent results, has a strong and rapid circulation and is very economical in use of steam.

The following extract from a letter received from a large mill is typical of the many testimonials we have on file: *"We note that in the new type kiers the liquor can be brought to a boiling point very much quicker than in the old type, thereby saving considerable time in the boil-off."*

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Another kier that we manufacture is the "ALLEN WORCESTER" KIER. This is the kier which is becoming so popular. It is replacing scores of other types, having proved its efficiency and economy in the finest mills in the country. The New "Worcester" Kier is mechanically correct. A rapid and positive circulation is supplied by the motor or steam driven pump and an unvarying strength of liquor maintained throughout the boil.

Every type of Allen Patent Kier is mechanically correct in every detail. No live steam is admitted to the kier. They assure enormous savings in steam, labor, fuel, chemicals and water; and the results are always absolutely uniform and up to the finest requirements.

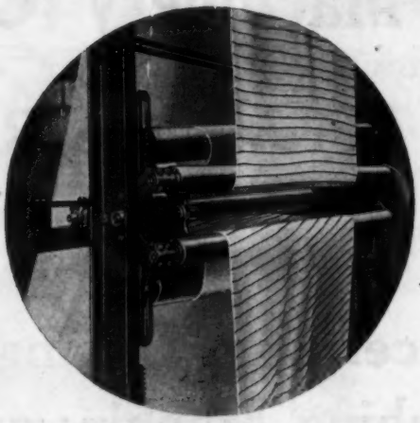
Investigate the possibilities of improving your plant. Let us show how the Allen Kiers will increase your bleach room efficiency.

We also manufacture The Allen Improved LOGWOOD EXTRACTOR for extracting the coloring matter from Logwood Chips, and a complete line of CAUSTIC MIXING TANKS and STEAM BOXES and will be very pleased to give full particulars concerning them. Let us hear from you if you are at all interested in such equipment.

Worcester Steam Boiler Works

Wm. Allen Sons Co., Prop.

Worcester, Massachusetts



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The L & L
Combination Weft Straightener and Compensator
(Patented)

does the work perfectly and quickly. It prevents "seconds" due to crooked weft, because it never gets tired or careless.

Requires only occasional attention by a boy or girl who may have other duties.

Simply and durably constructed, with no gears or pinions to get out of order.

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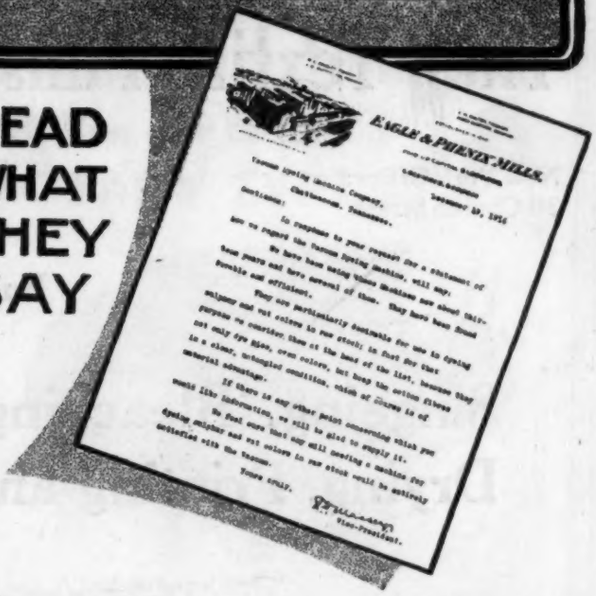

THIS is the kind of letters we receive from all users of the Franklin Raw Stock Dyeing Machine. Such letters from some of the largest and most conservative mills speaks pretty well for this machine.

The Vacuum Raw Stock Dyeing Machine is mechanically correct in every detail. It uses the most scientific and correct method of dyeing—that is, passing the liquor through the stock instead of putting the stock or goods through the dyes. This method leaves the stock in the best possible condition, and they cannot become entangled.

This machine dyes cotton, shoddy, rags, hosiery and other loose material. The machine is easily loaded, unloaded and operated. It assures a great saving in dyestuffs, time and labor—it makes a cleaner dye-house by eliminating escaping steam and economizing in floor-space.

It's your ultimate selection in a raw stock dyer, and our engineers will be glad to advise with you without obligation and help you to cut your dyeing costs.

Ask us to send you full information. Do it today.

This is the best possible time to have your odd lots of colored yarn put into black.

If you have any yarn on cones, tubes, bobbins, or in any form that will wind over end, we will be glad to process same for you. We have in Sulphur Black for sale 30/2, 40/2, 50/2 and 60/2 yarn dyed on Franklin tubes.

Write us for our Interesting Catalog.

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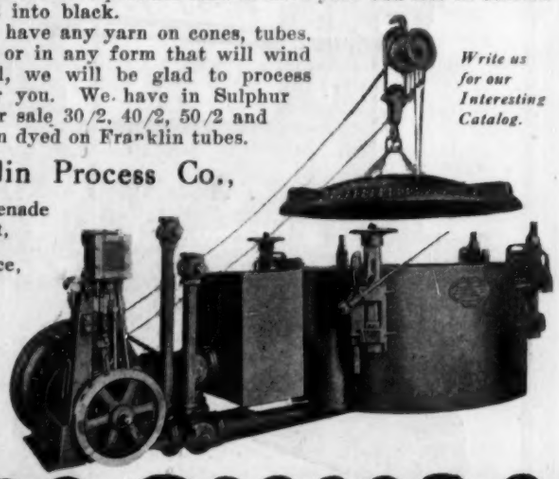

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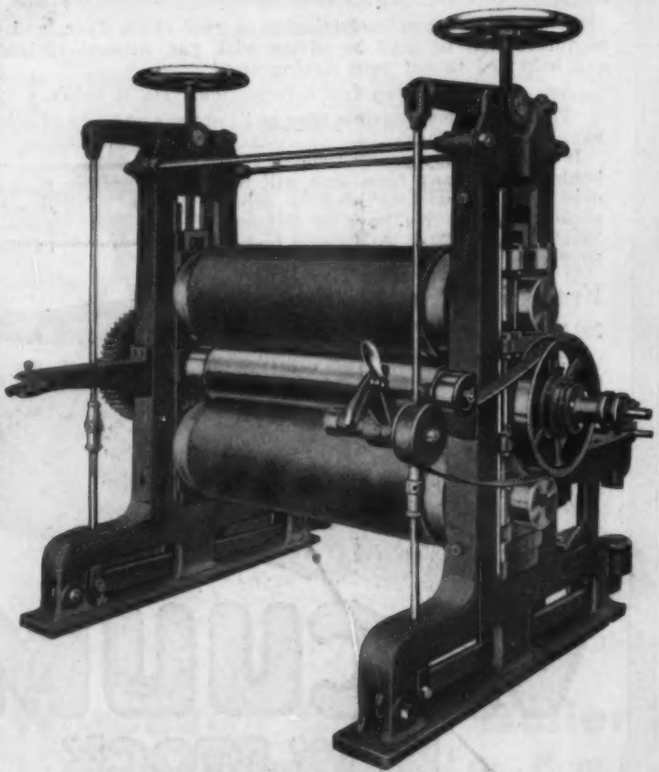

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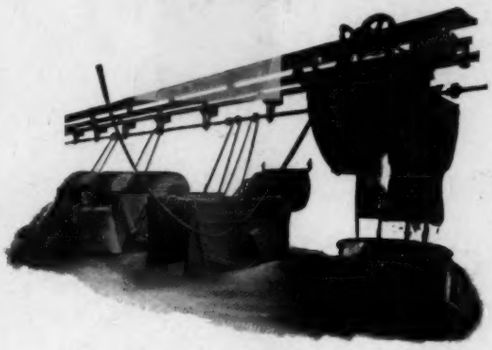

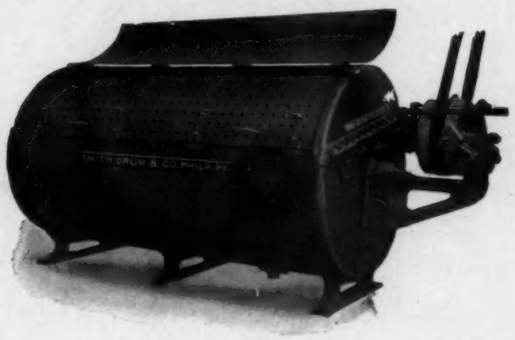

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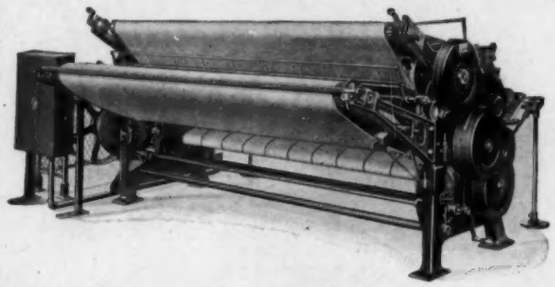

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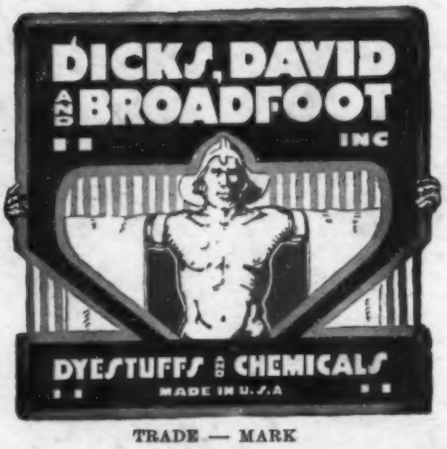

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